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June 12, 1995, Vnl. 29, Nn. 24, 200 Pages, $6/Cnpy, $48/Year

COMPUTERWORLD

CHECK OUT COMPUTERWORLD'S SMITHSONIAN AWARD WINNERS, page 28

Lotus on the block



IBM Chairman Louis V. Gerstner's *plan to acquire Lotus signals the importance of Notes as a groupware weapon against Microsoft...*



...but the move leaves Chairmen Jim Manzi *facing the loss of his company's independence to a giant with a history of PC software failure*

IBM takeover bid finds support from Lotus users

By Michael Fitzgerald

In the wake of IBM's $3.3 billion bid last week for Lotus Development Corp., users sought a crystal ball to tell them whether the buyout would enhance Lotus' fate or seal it.

A deal looked inevitable late Friday afternoon, as Lotus sources confirmed that Chairman Jim Manzi met with IBM Chairman Louis V. Gerstner several times during the week. With no rival bidders emerging by press time, users on the whole expressed optimism about the prospect of IBM owning Lotus.

"Lotus gets a life!" said Allen Ditchfield, chief information officer at Progressive Insurance Cos. in Mayfield Village, Ohio. Progressive has 3,000 Notes licenses and is an OS/2 shop as well. Ditchfield said Notes was uppermost in his mind, however.

IBM, *page 141*

Users: Notes 'crown jewel' unlikely to lose its luster

By Suruchi Mohan

Notes users did not share the gloom that hung over the executive offices at Lotus Development Corp. last week. Rather, they predicted a better chance of success for the popular groupware product under the banner of a well-heeled IBM.

Notes is clearly the crown jewel IBM hopes to take from the Cambridge, Mass., software company. "Notes is a leadership product," said IBM Chairman Louis V. Gerstner at a press conference. Lotus will become the "focal point for all groupware for our company," he added.

An exclusive *Computerworld* survey last week reflected optimism among information systems managers about the acquisition — hostile or otherwise. Of 112 users polled, 32% indicated that the IBM takeover

Notes, *page 141*

What would be your biggest concern about a hostile takeover?

Lotus' top development talent may leave	32%
Uncertainty about the fate of specific product lines	23%
Support and service may decline	21%
Other product concerns	12%
No concerns	8%
Other	4%

BASE: 57 LOTUS GROUPWARE CUSTOMERS AMONG 112 IS MANAGERS SURVEYED

INSIDE

- **Can IBM pull this off, given its sorry history fe desktop software? Users end analysts offer up some pointers and advice for Big Blue. By Craig Stedman – page 14.**
- **IBM's commitment to OS/2 can no longer be doubted as the company moves to acquire Lotus, its most important OS/2 developer. By Lisa Picarille – page 14.**
- **Whatever Lotus' fate, it was business as usual at Novell last week, where some are expecting a boost in the fortunes of Novell's GroupWise groupware product. By Laura DiDio – page 16.**
- **As Oracle users watched the IBM/Lotus tussle over groupware, some wondered what happened to Oracle Groupware, the long-promised "Notes killer." By Kim S. Nash – page 15.**

Intel chip could unclog PC server bottlenecks

By Jaikumar Vijayan

Intel Corp. next week will announce a single-chip, intelligent I/O subsystem expected to significantly ease PC server I/O bottlenecks.

Long considered one of the most serious shortcomings of PC server architectures, the I/O bottleneck reduces the speed at which users can access and manipulate text, graphics, video and audio data from PC servers that provide crucial database, communications and electronic-mail functions.

Intel's new 32-bit i960 RP chip, scheduled for fourth-quarter availability, is expected to speed

Intel, *page 12*

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AT&T blesses ATM future

By Michael Fitzgerald

Asynchronous Transfer Mode moved to more solid ground last week after AT&T Corp. announced it has begun work on a major upgrade to its data communications network.

Because it moves data at rates of 155M bit/sec., ATM will make the use of data-hogging applications such as video and sound more viable for user companies. However, while ATM's bandwidth makes it a hot technology in users' minds, large corporations will be hard-pressed to take full advantage of all that bandwidth without a nationwide ATM infrastructure.

ATM is a high-speed data transfer method.

"Potentially, it's terrific. There are questions [about ATM standards], but [the AT&T upgrade] is very consistent with our hopes and expectations and, in that sense, [is] good news," said Dave Beering, a senior staff telecommunications analyst at Amoco Corp. in Chicago. He added that ATM was of particular interest because "the goal of many folks right now is to

AT&T, *page 12*

The View from the Corner Office

Senior execs are more hard-nosed than ever about information technology decisions. According to this year's *Computerworld* survey, fewer CEOs and CFOs think information technology holds the key to competitive advantage.



The CEO/CFO survey follows page 64.

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What's Inside

June 12, 1995

Remote CONTROL



Remote tie-ins are a must for bank clients and managers, says Bank of Montreal vice president Michael Prew

Micael Abbenson

There are tradeoffs to bringing remote users into collaborative setups. Give them direct database access and you have to worry about security. Let them download and massage data and you risk inconsistent databases. Despite the headaches, however, innovative companies are forging ahead.

See In Depth, page 107

■ **Hewlett-Packard is adding features to its OpenView** platform that will allow users to manage applications — including tracking performance and problem areas. **NEWS**, *page 4*

■ A. T. Kearney partners stand to get rich quick under a **$600 million buyout by EDS. NEWS**, *page 10*

■ After all the hype about interactive video, reality is setting in. Some **Baby Bells are rethinking their plans for interactive video**, and computer vendors are scaling back their sales expectations for things such as media servers. **NEWS**, *page 12*

■ Corporate **re-engineering bosses remain hot to trot** but critical of IS. **NEWS**, *page 20*

■ **Compaq CEO Eckhard Pfeiffer** talks about the Pentium chip, outsourcing the company's engineering expertise and other matters. **COMPUTER INDUSTRY**, *page 22*

■ Meet this year's **Smithsonian Awards winners. NEWS**, *page 28*

■ **Microsoft is piloting auditing procedures** in the UK to help corporate IS managers ensure the software they're using is fully licensed. **DESKTOP COMPUTING**, *page 43*

■ **Wireless LANs are complementing**, not replacing, existing corporate networks. **WORKGROUP COMPUTING**, *page 55*

■ In the latest industry wars, users take sides over **stackable vs. modular** switches and hubs. **ENTERPRISE NETWORKING**, *page 61*

■ **Sabre Computer Services**, the IS arm of American Airlines, now has plenty of growing room in its data center, thanks to a consolidation effort and new technologies. **LARGE SYSTEMS**, *page 75*

■ Comerica, a Detroit-based bank, recently downsized from a mainframe-based trade services platform to a **client/server architecture. LARGE SYSTEMS**, *page 80*

■ **The California State Automobile Association accelerates customer service** with an on-line performance support system. **APPLICATION DEVELOPMENT**, *page 91*

■ **Brush up on those PowerBuilder skills** — developers who can write sophisticated applications for the enterprise are in demand. **CAREERS**, *page 113*

■ **Automation tools are scarce** on most help desks, but not for lack of products. **MARKETPLACE**, *page 130*

■ **MGM/UA's Edward Altman** races to help the struggling studio 'rebuild. **MANAGEMENT**, *page 99*

■ **Paul Gillin** provides a glimpse at the *real* telephone exchange between IBM's Lou Gerstner and Lotus' Jim Manzi. **VIEWPOINT**, *page 36*

■ Executives cannot hope to rely on managing the costs of information by applying tight capital budgeting methods to investments in computers, **Paul Strassman** says. **VIEWPOINT**, *page 37*

■ When it comes to the techno-future, where do you stand? Take this test by **Michael Cohn** and find out. **VIEWPOINT**, *page 37*

■ The Supreme Court needs to step in to settle, once and for all, the issue of the "look and feel" of software, **Martin Goetz** says. **DESKTOP COMPUTING**, *page 44*

■ The Internet is a wonderful place to learn about new technologies such as client/server, **Timothy L. Trimble** says. **ENTERPRISE NETWORKING**, *page 66*

■ Beware of companies who attempt to outsource their extra capacity to you, **Jeffrey M. Kaplan** says. **LARGE SYSTEMS**, *page 79*

■ PC applications will crop up with special claims on the corporate data, sometimes under pressing circumstances. For example, a new embedded expert system helps analyze difficult employee/employer situations, **Charles Babcock** says **COMMENTARY**, *page 141*

Calendar ..... *Page 104*
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Editorial/Letters to the editor ..... *Pages 36, 40*
June 9 Stock Ticker ..... *Page 139*
How to contact Computerworld ..... *Page 142*

Executive Briefing

Lotus users are not the only ones wondering what fate might befall them after their software supplier is sold. **Some Legent customers** plan to petition the Justice Department with their concerns that Computer Associates' proposed acquisition of Legent will mean less competition in the mainframe software arena. *Page 4*

As Microsoft touts the new features in its Office 95 applications suite, it claims to have signed up 45 hardware manufacturers — including IBM, Compaq and Dell — to ship Windows 95 with their systems. *Page 8*. Meanwhile, IBM is said to be making OS/2 headway in Europe. *Page 49*

Novell still plans to support OpenDoc, even though it is first at bat with Microsoft's OLE technology. *Page 91*. A new crop of **object databases** boasts features once found only in the relational variety. *Page 94*

Intel announces an intelligent subsystem designed to resolve the I/O bottlenecks in PC servers and expand its processor range yet again. *Pages 1 and 8*. A torrent of announcements from other chip vendors promises users a flood of choices. *Page 50*

Another wave of client/server products — both applications and tools — is expected at this week's Database & Client/Server World conference. *Page 22*. **Powersoft promises a faster version** of its development tool, and users discover that **preconfigured bundles of client/server applications** ain't all they're cracked up to be. *Pages 24 and 80*

IBM plans to unveil this week the second generation of its CMOS-based mainframes, as **Convex** upgrades its parallel supercomputer and promises a more aggressive upgrade schedule. *Pages 4 and 75*

In other hardware news, **Hewlett-Packard** will announce its new graphics workstations today; **IBM plans to debut PowerPC** Unix-based workstations next week; **AT&T GIS offers a four-processor, high-end server**; and **Digital** tries to go Hollywood with a new PC. *Pages 4, 43 and 49*

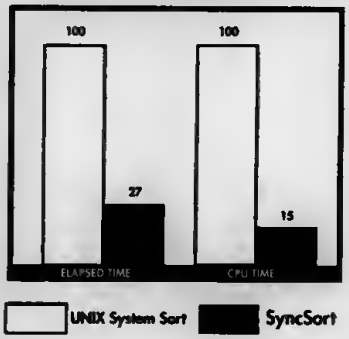
Internet happenings this week: Customers are interested in **Sun's Hot Java** browser but wonder about the vendor's other Internet building blocks; back-end billing and reporting systems debut to **link a company's legacy systems to the 'net** for electronic commerce. *Pages 56 and 65*

The 5th Wave *by* Rich Tennant



The UNIX System Sort

PERFORMANCE



FUNCTIONS

	UNIX System Sort	SyncSort
RECORD FORMATS		
Fixed length binary	NO	**YES**
Variable length binary	NO	**YES**
ASCII Text	YES	**YES**
RECORD PROCESSING		
Selection	NO	**YES**
Reformatting	NO	**YES**
Summarization	NO	**YES**
Grouping	NO	**YES**
COLLATING SEQUENCES		
Standard ASCII	YES	**YES**
EBCDIC	NO	**YES**
User Defined	NO	**YES**
Multi-byte	NO	**YES**

UNIX has its advantages, but its System Sort isn't one of them.

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XINU

HP, BMC each offer application management tool

By Steve Moore

Client/server users hemmed in by hardware-oriented network and systems management tools will gain new application management capabilities next week when Hewlett-Packard Co. introduces a new version of PerfView performance management software. The software operates under the OpenView enterprise management umbrella.

A spokesman for the Palo Alto, Calif., company confirmed that among other application management capabilities, users will find a new application programming interface and a new version of HP's Performance Collection Software (PCS), which feeds data to PerfView. This version will likely be renamed MeasureWare.

The company's application management thrust follows on the heels of a similar move by Houston-based BMC Software, Inc., which last week introduced a version of its Patrol application management software suite. Improvements include "autonomous agents," which provide greater scalability because they operate independent of the central console, and improved "knowledge modules," which enable Patrol to manage specific applications such as Notes and several leading relational databases. Patrol's application management software is integrated with HP's PCS.

Need for client/server apps grows

Analysts said the vendors' actions reflect the increasing importance of enterprise client/server applications.

"We are getting past the early adopter stage on client/server applications, and we will see more and more applications that are designed to ensure availability and performance so companies can rely on them to meet service-level objectives," said Paul Mason, an analyst at International Data Corp. in Framingham, Mass.

Users said application management is rapidly becoming a critical challenge. "With the whole new generation of partitioned applications and distributed objects people are talking about now, keeping track of where things are in the network and how they are performing will become a hot priority for us within 12 months," said Rolen Yoshinaga, MIS director at the Utah Administrative Office of Courts in Salt Lake City and an OpenView user.

HP, BMC and several other vendors are using their own agent software to make applications manageable, but one user cautioned against a proliferation of proprietary application management schemes.

While vendor-specific application management tools will be "a good stopgap measure, I would prefer to see the effort focused on developing application-specific [Simple Network Management Protocol Management Information Bases]," said Paul Edmunds, a senior information systems analyst at Duke Power Co. in Charlotte, N.C., and an OpenView user.

BMC users applauded the extended application management features promised in Version 3.0 of Patrol, particularly the "knowledge modules" that enable Patrol to manage other databases.

HP workstations get boost

'Super fast' J series to double or triple graphics performance

By Jean S. Bozman
PALO ALTO, Calif.

Hewlett-Packard Co. will announce its new super fast line of graphics workstations today, but company officials said the machines would have debuted months earlier had HP not clinched a $672 million deal in January.

That deal obligated the firm to ship 20,000 units to the U.S. Navy as shipboard tactical computers during the next three years.

The new J series has double to triple the graphics performance of previous models, HP said [CW, May 8]. High-end Unix workstations that can be used as a technical server, the J boxes are being introduced three months after the K-class commercial Unix server.

Both sets of machines are built from the same components and use the HP-UX 10.0 Unix operating system to run as symmetrical multiprocessors. The J systems also run the earlier version of the operating system, HP-UX 9.x, HP said.

Some early users installed or ordered J200 models in recent months after the models popped up on the HP price lists even before they were officially announced. "We've got two J210s on order, and one of them shipped [last Wednesday]," said Robert H. Dodds, a professor of civil engineering at the University of Illinois at Champaign-Urbana.

Fending off rivals

The new HP machines will face competition from IBM Unix workstation models based on the PowerPC 604 RISC chip (see story below).

Hewlett-Packard's new graphics workstation lineup

Model*	Processor	Price	Available
J200	Single 100-MHz PA-RISC 7200	$33,800	Now
J200	Dual 100-MHz PA-RISC 7200	$43,800	Now
J210	Single 120-MHz PA-RISC 7200	$41,800	Q3
J210	Dual 120-MHz PA-RISC 7200	$54,800	Q3

*All units include 32MB RAM, 1GB hard drive, CD-ROM drive and 19-inch monitor

But HP's new Visualize graphics cards can also be added to current Series 700 workstations (see chart).

"This offers us investment protection for our machines," said Ray Ball, senior technical analyst at toy maker Fisher-Price, Inc. in East Aurora, N.Y. "I'm extremely pleased to see they're more than keeping up with the competition."

Still, some delays in J shipments are expected this summer, industry analysts said, as HP contends with high demand from end users and complies with the Navy contract. "They're going to use up much of their manufacturing capability for the short term just generating the ones for the contract," said Wayne Collier, a research analyst at D. H. Brown Associates, Inc. in Port Chester, N.Y.

HP said component shortages and high order rates are forcing shipment delays beyond the normal two to eight weeks on many product lines, including printers.

Digital goes after the Hollywood special effects market. See page 43.

Catch the wave

Seeking to ride the wave of growing user demand for graphics workstations, IBM plans to announce PowerPC 604-based Unix workstations at a New York press conference next Monday, sources close to the company said last week.

Some of the entry-level and midrange units are expected to double the performance of older models. "On the low end, they're going to have very high performance, and they're bringing 3-D high-end graphics to the midrange," said Tom Copeland, an analyst at International Data Corp. in Framingham, Mass.

Part of a larger announcement of PowerPC 604-based PCs [CW, June 5], the IBM RS/6000 workstations will compete with entries from HP and Silicon Graphics, Inc. units that are due later this summer, analysts said.

The new crop of products reflects heavy demand by engineering and networked systems users and lower-than-expected competition from Microsoft Corp. Windows NT servers, analysts said.

The IBM units will be based on 604 chips running at 100, 120 and 133 MHz, sources said.

IBM is expected to delay shipments of free PowerPC 604 upgrades for its PowerPC 601-based Unix servers until midyear. However, the company expects to show six- and eight-way versions of its J30 and R30 Unix servers this week as well as IBM Power Personal 604-based PCs running SunSoft, Inc.'s Solaris Unix operating system. —*Jean S. Bozman*

Intel to unveil faster Pentium chip

By Jaikumar Vijayan

In yet another iteration of its fast-growing Pentium line, Intel Corp. today will unveil a 133-MHz version of the chip aimed at the server and high-end desktop markets (see related story, page 50).

Among those simultaneously launching products based on the chip are IBM, Dell Computer Corp., Gateway 2000, Inc., AST Research, Inc., Acer America Corp. and Advanced Logic Research, Inc. Systems based on the chip are not expected to start shipping widely until August.

Compaq Computer Corp. and Hewlett-Packard Co. are also expected to announce products, however, they declined to comment.

"The broad set of OEMs supporting these chips is an indication of how fast the market has transitioned to Pentium," said Frank Spindler, director of product marketing at Intel in Santa Clara, Calif.

Faster, faster

The new 133-MHz chip is the ninth member of Intel's Pentium line and is manufactured on the company's 0.35 micron, 3.3V process. The chip delivers roughly twice the performance of the original 60-MHz chip, Intel said.

Analysts predict that before Intel unwraps its P6 chip later this year, the company will launch a 150-MHz Pentium chip in the third quarter. The P6 is Intel's next-generation chip for the server market [CW, May 22].

The announcement of servers and desktop PCs based on the 133-MHz chip is again expected to redefine entry points and prices of Pentium systems.

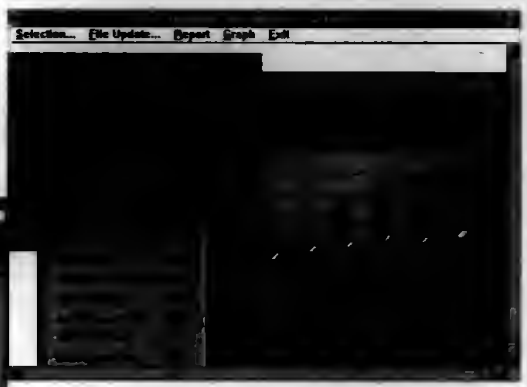
With this announcement, Intel will finally put to pasture the 2-year-old 60- and 66-MHz Pentium chips, which have all but stopped shipping. Also, Intel's popular 75-MHz chip, introduced a year ago, will move into the sub-$1,500, low-end part of the systems market by year's end, analysts said.

Meanwhile, 90- and 100-MHz systems will move into the volume business PC markets at prices of less than $2,500 by year's end. Systems based on the new high-end 120- and 133-MHz systems will retail at prices starting at $2,500 by the end of the year, analysts added.



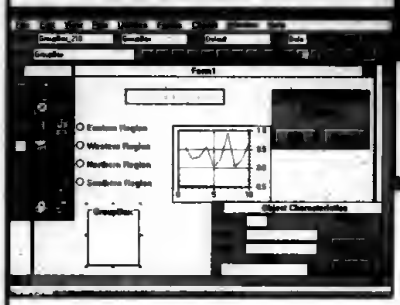
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Legent sale sparks write-in campaign

By Thomas Hoffman, Mitch Betts and Johanna Ambrosio

Some customers are mounting an on-line assault in an effort to stop Computer Associates International, Inc.'s proposed buyout of Legent Corp.

Fueling their concerns is the perception of a large overlap between the two companies' product lines — particularly in the VSE disk and tape utilities arena. The fear is that this will lead to fewer product offerings and, therefore, fewer choices for users.

As of press time, *Computerworld* was able to confirm that five customers recently sent letters or faxes to the Department of Justice and/or the Federal Trade Commission (FTC). At least 11 other users also expressed antitrust concerns in Internet discussion groups, but it is unknown whether they also communicated with the government agencies.

Most of the concern, it seems, is coming from the VSE community. Unlike the IBM MVS utilities market, where competition is still relatively healthy, CA and Legent together hold a sizable presence in specific VSE sectors, observers said.

Leo Langevin, technical support manager at ITT Bell & Gossett, a manufacturing firm in Morton Grove, Ill., uses the VSE operating system. He has already sent letters to both agencies. "If we want disk and tape management systems, we will have one company to go to. They'll be able to make whatever contracts they want to and run our business," he said.



Legent's close marketing and development relationship with IBM is another concern, Langevin said. On the other hand, CA "had no visibility" at the most recent IBM technical developer's conference, which was held about two months ago in Georgia, he added.

Rich Smrcina, senior staff analyst at Computer People Unlimited in Milwaukee, agreed. In fact, he has already written the FTC. Smrcina's June 2 letter read, in part, "A good solid company with a strong product base would be lost, absorbed by a company whose products are sometimes described as second-rate and undependable. ... This is unacceptable to a substantial number of technical-support providers in this country."

CA declined to comment on these users' activities.

For their part, officials at the Justice Department and the FTC said they have not decided whether or when either agency will look into possible CA/Legent antitrust violations (see story this page). Nor would they comment on the number of letters and faxes they have received from concerned Legent customers.

But Legent users are not the only ones looking into competitive market issues involving a CA/Legent combination. Last week, at least five investment bankers and industry consultants said they are also doing research in this area.

"Clearly there are some areas of substantial overlap" between CA and Legent utilities, said Paul Mason, an analyst at International Data Corp. in Framingham, Mass. Mason, who said he is currently researching these issues for a client, identified overlap between Legent's Prevail/XP-JobTrac with CA's CA-7 MVS job scheduling package.

Market share an issue

If the combined market share of the overlapping products reaches 70%, CA could find itself declared a monopolist. "The 70% figure is a rule of thumb for beginning to determine whether a company is monopolizing a market, but the [government] can challenge a merger at numbers well below that," explained attorney Marc Schildkraut, a partner at Howrey & Simon in Washington.

"A combined market share of 25%, if there are only three or four other companies in the market, might be enough to pique an antitrust agency's interest," he said.

Pete Clark, supervisor of systems software support at Olan Mills, Inc., a VSE shop in Chattanooga, Tenn., has posted Justice Department/FTC notification recommendations on the Internet VSE discussion group. "I'm gravely concerned about the competitive stature of systems software," he said in an interview last week. "The merger mania of the past 10 years has left these products with virtually no competitors."

In the past, CA has dismissed Clark as a vocal and disgruntled user.

However, Clark is not alone in his concerns. "Overall, I see [the CA/Legent merger] as another way to close the market and drive up prices," said Bennie Pugh, manager of operations and technical services at Thomasville Furniture Industries, Inc. in Thomasville, N.C. Pugh has also voiced his concerns on the VSE World-Wide Web site and said he is considering notifying one of the antitrust agencies.

It is unclear whether these customers represent a sizable number of people who are taking action to stop the merger. Until now, most of the activities have been taken by some grassroots leaders such as Langevin and Clark, who are calling, or said they have been called by, other concerned customers.

There may be more organization afoot, however. John Tyler, a systems programmer at Paragon Direct in Milwaukee, said he was contacted by a user group representative in that city "who is putting together a petition" to stop the merger. He had not decided whether to take part, saying he needed more information.

Senior editor Steve Moore contributed to this story.

Merger review



While it is not yet clear which of the government's two antitrust agencies — the Department of Justice or the FTC — will review the merger, there was speculation last week that the nod could go to the Justice Department because of its turn with the IBM mainframe antitrust suit of the 1970s.

A spokesman for the department's Antitrust Division said no such decision has been made yet.

The merger parties, under the Hart-Scott-Rodino Act, must file papers notifying both agencies of the proposed merger and then wait 30 days before consummating the deal.

During that waiting period, the agency that takes the case will conduct a preliminary inquiry, which includes interviews with both parties, competitors and customers. — *Mitch Betts*

IBM pushes CMOS System/390s up the mainframe food chain

By Craig Stedman

IBM this week will give its CMOS-based mainframes a big iron supplement that should boost them high enough on the System/390 food chain to enable widespread migrations from more expensive water-cooled machines, users and analysts said.

The computer giant will introduce a second generation of its air-cooled 9672 R models based on a CMOS chip rated at up to 23 MIPS, sources said. A full 10-processor version will do 176 MIPS, which should handle more than 50% of System/390 applications, they added. By contrast, the initial 9672 R systems topped out at about 50 MIPS and were limited to small workloads.

"There's enough power in those new CPUs to do any of my biggest jobs," said Ken Smith, director of systems software at Canada Housing and Mortgage Corp. in Ottawa. The lower cost of CMOS technology may also enable the company to get around budget constraints that have prevented a needed upgrade of its water-cooled ES/9000, especially the less powerful 9121 series, he added.

IBM is pricing the 9672 R hardware as low as $15,000 per MIPS, while ES/9000s still go for as much as $23,000 per MIPS, said Carl Greiner, an analyst at Meta Group, Inc. in Stamford, Conn. The CMOS-based systems also have much lower power, cooling and maintenance costs and require less floor space, he added.

Bye-bye 3090

The new models sound the death knell for IBM's aging 3090 machines and should start picking off lower-end ES/9000s, Greiner said. "It's not going to be for everyone yet" because the 23 MIPS chip is not powerful enough to run some single-engine processing jobs, he said. "But it puts the ES/9000 on notice."

Now can do

The second generation of IBM's CMOS-based mainframes should be powerful enough to handle the following processing jobs:

- Wholesale replacement of 3090 and 9121 series mainframes
- Systems programming functions
- Application development
- Most transaction processing that does not involve IBM's DB2 databases
- Batch processing that is not CPU-intensive

Source: Gartner Group, Inc., Stamford, Conn.

Edward D. Jones & Co., a brokerage in St. Louis, is one customer that still needs the more robust emitter-coupled logic processors built into high-end ES/9000s. It uses an ES/9000 Model 820 with three 46 MIPS CPUs to handle its CICS transaction load, and the CMOS technology is not up to that kind of workload yet, said Rich Malone, the company's chief information officer.

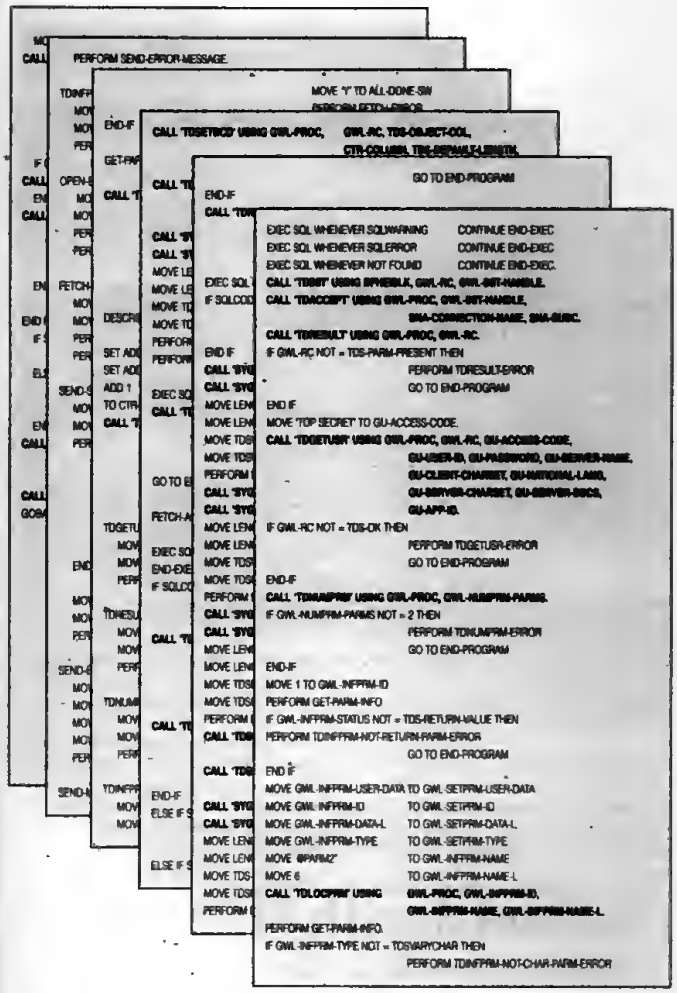
"We're a 50 MIPS engine kind of shop because we're so transaction-driven," Malone said. "We do more than 8 million CICS transactions a day, and a huge percentage of those are done during business hours. [The new CMOS processors] are still pretty low for us."

Code-named Concerto, the new 9672 R line is split into a low-end series with conventional CPU packaging and a higher-end offering that uses multichip module technology to provide better scaling as processors are added, sources said. The latter machines will ship next month, and the low-end boxes are due out in September.

COMPARE MAINFRAME DATA ACCESS

Sybase

71 lines proprietary code



** Taken directly from Sybase Open/Server Mainframe COBOL Programmer's Reference, pgs. C-3 through C-14 © 1994

Oracle

0 lines proprietary code

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To access mainframe data with Sybase's "Open Server" you must rewrite your existing mainframe transactions and embed dozens of Sybase proprietary interface calls. With Oracle, your existing mainframe transactions run without modification.

The Sybase code on the left queries rows from one DB2 table and returns those rows to the client. This simple query example, taken directly from Sybase's "Open Server/Mainframe COBOL Programmer's Reference" manual, requires you to embed 71 lines of proprietary Sybase gateway code into a 222 line mainframe COBOL program. In contrast, Oracle's "Procedural Gateway for APPC" uses standard IBM APPC interfaces, so you can access mainframe data using your existing mainframe transactions without modification. If you want easy-to-use, standards-based, fast mainframe data access technology call Oracle at **1-800-633-1071 Ext.8118.**

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Microsoft readies apps for Win 95

32-bit Office ship date set

By Stuart J. Johnston

■ Within a month of shipping Windows 95, Microsoft Corp. plans to ship new versions of most of its productivity applications, company officials said last week.

Office for Windows 95 Standard Edition, which will include Excel, Word, PowerPoint, the Microsoft Mail client and Schedule+, will ship within 30 days of Windows 95, said Dennis Tevlin, group product manager for Office. The Professional Edition, which includes the Access database, will ship four to six weeks after that, Tevlin added.

Additionally, a Windows 95 version of Microsoft Project is set to ship at the same time as Office 95 Standard Edition.

Besides basic support for Windows 95, which includes 32-bit pre-emptive multitasking and support for long file names as well as other features in the user interface, the Office 95 apps will appear much more similar to one another.

Storage bin

High on that commonality list is a new concept that Microsoft calls the Office Binder. This feature is common across Office and is based on extensions to Microsoft's OLE technology. It uses the metaphor of a three-ring binder to enable users to store a collection of documents and files that are all related in a single file called an Office Binder.

For example, a report may combine inputs from different groups of users, Tevlin said. The introduction might be written by one person using Word, while later document sections might be written by others. Supporting portions may be created by still other groups using Excel spreadsheets and charts and schedules using Project with data extracted from Access.

Using an Office Binder will enable a document under development to change, section by section, without massive work to recollate and repaginate. Additionally, because an Office Binder exists as a single file, it can be easily posted on a network so users who need to contribute to it can work on the document simultaneously.

Office 95 will also feature increased shared code and components. Various components function across all of the applications, including an image editor, graphing tool, equation editor and a data mapping tool that lets users analyze data geographically and import and edit graphic art.

A customizable task bar, called the Microsoft Office Shortcut Bar, not only enables users to launch Office applications but also lets them drag and drop frequently used files and folders onto the task bar for quick access.

The applications will also share an artificial intelligence-based Answer Wizard that enables users to type in a question as to how to use the product. For instance, the user might type, "How do I print sideways?" and the Answer Wizard would analyze the sentence and offer relevant help to answer the question.

PC vendors acquiesce to ship Win 95

Microsoft lines up vendors, sets retail price, as ship date approaches

By Stuart J. Johnston
BELLEVUE, WASH.

Despite dire predictions last fall that major PC makers might shy away from Microsoft Corp.'s Windows 95, most — including arch-rival IBM — have decided to ship the forthcoming operating system with at least some systems.

While speaking at a Windows 95 reviewer's workshop here, Microsoft Chairman Bill Gates said last week that 45 PC vendors have licensed Windows 95, including Compaq Computer Corp., Hewlett-Packard Co., Dell Computer Corp., AST Research, Inc. and NEC Technologies, Inc.

According to a list provided by Microsoft, other U.S. PC vendors who have signed up include AT&T Global Information Solutions, Gateway 2000, Inc., Toshiba America Information Systems, Inc., Zenith Data Systems, Unisys Corp., Epson America, Inc. and Micron Electronics. The IBM PC Co. also said recently that it will preinstall Windows 95 on some of its systems.

Officials at several of the PC vendors said they have not decided whether they will ship new machines with only Windows 95 or with both Windows for Workgroups 3.11 and Windows 95.

Microsoft also announced last week its estimated retail pricing for Windows 95. An upgrade version that will install over Windows 3.x, Windows NT or OS/2 will cost $109. A version intended for new installations on machines without a pre-existing version of those systems will cost $209.

Judgment day

Brad Chase, general manager of Microsoft's Personal Systems division, acknowledged that Microsoft is at least partly responsible for overhyping Windows 95 and said the product is "not perfect." For example, it will not run every Windows 3.x product in existence. But it will run all but 200 of the Top 3,500 applications, he said, and the company will include a list of those that it will not run.

Chase also said that while Windows 95 will run in 4M bytes of RAM, the company is recommending at least 8M bytes.

Microsoft officials said Windows 95 is on target for commercial availability on Aug. 24.

"We'll probably put our first release candidate out this week," Chase said. "It looks really, really good for Aug. 24."

In Microsoft parlance, a "release candidate" is beta code that the developers regard as finished. If no major last-minute bugs, called "showstoppers," are discovered by beta testers or the developers, the release candidate "goes gold," or is approved as final and sent to manufacturing. Often, however, a product goes through 10 or more release candidates before it is finally OK'd for commercial release.

Contrary to the company's tradition of rolling out important products in major cities, the official launch for Windows 95 will be held at or near Microsoft's Redmond, Wash., campus with satellite uplinks to other sites around the world, said sources who have been briefed. Company officials declined to confirm or deny that report.

More than a million users are beta-testing Windows 95, Chase said. Microsoft distributed 50,000 beta copies and more than 300,000 "preview" copies. Preview customers were allowed to install Windows 95 on up to five machines, and that accounts for the extremely large number of users, Chase said.

Third-party applications vendors are expected to hit the ground running soon after Windows 95's release (see chart). Gates said 53 independent software vendors have committed to shipping Windows 95 products and that another 75 hardware vendors will ship plug-and-play products that work with Windows 95.

Waiting for Windows 95

A sampler of third parties readying Windows 95 applications

Company	Product	Delivery date*
Novell	PerfectOffice	By end of 1995
SPSS	SPSS 7.0	Within 90 days
Software Publishing	Harvard ChartXL 2.0	Same day
	Harvard Graphics 4.0	Within 30 days
	Harvard Spotlight 2.0	Before Windows 95
Claris	ClarisWorks 4.0	By end of 1995
Delrina	WinFax Pro 7.0	Within 60 days
	Cyberjack 7.0	Within 60 days
	WinComm Pro 7.0	Within 60 days
Micrografx	Picture Publisher 95	Within 30 days
Adobe	PageMaker 5.0	By end of 1995
	Photoshop	By end of 1995
	Type Manager 3.01	Q1 1996
	Acrobat 2.0	1996
	Persuasion 3.0	1996
Borland	Delphi	Within 90 days
	Paradox	By end of 1995
	C++	By end of 1995
Corel	CorelDraw 6	Same day
	Photo-Paint	Within 30 days
Caere	OmniPage Pro	Within 90 days

*Dates are based on Microsoft's stated Aug. 24 availability date for Windows 95

DOJ enters Round 3 with Microsoft

The U.S. Department of Justice last week sent subpoenas to the major online services to gather more information for its antitrust investigation of Microsoft Corp.'s The Microsoft Network (MSN) — a sign that the probe is accelerating.



The Justice Department may be trying to wrap up the inquiry in time to request a court injunction blocking the release of Windows 95 on Aug. 24. Competitors fear that bundling the MSN access software with Windows 95 gives Microsoft an unfair advantage.

In a teleconference last week, Microsoft officials said they intend to fight any attempts to restrict the company from providing the MSN client software with Windows 95, even if that necessitates a court battle.

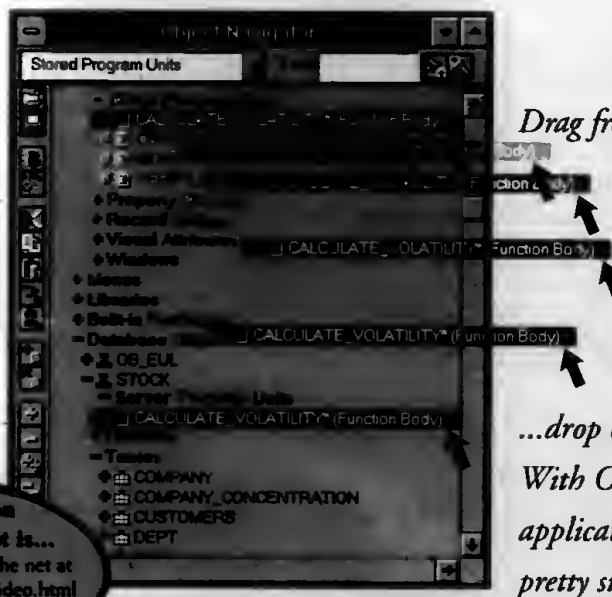
While he did not directly confirm that the DOJ has subpoenaed information from Microsoft regarding the company's MSN plans, Bill Neukom, Microsoft's counsel, did say, "We've been in regular contact with them."

Neukom predicted that it will be very hard for the DOJ to get an injunction stopping the bundling of MSN with Windows 95 at this point because it has to prove irreparable harm to the industry.

Meanwhile, officials at America Online, Inc., Prodigy Services Co. and CompuServe, Inc. confirmed that they have received subpoenas, dated June 5, requesting speedy delivery of the information by June 9.

— Mitch Betts, Stuart J. Johnson and Ellis Booker

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Redefining Productivity

EDS buys out A. T. Kearney, gains consulting cache

By Julia King

Electronic Data Systems Corp. last week bought out one of the consulting world's prized jewels, A. T. Kearney, Inc. But it remains to be seen just how well the entrepreneurial Chicago-based firm will hold its sparkle in the highly regimented realm of EDS.

"This is one of those deals where if it works, it is really going to vault EDS to the top," said Tim Bourgeois, an analyst at International Data Corp. in Framingham, Mass.

"The real value is connecting high-level strategic consulting with systems integration and outsourcing. With Kearney, EDS has all three," Bourgeois added.

Pending approval by the companies' boards of directors, the $628 million acquisition — half in cash and half in stock — creates one of the world's largest consulting companies.

Under terms of the deal, the 69-year-old Kearney will be merged with EDS' 2-year-old consulting arm. Formed in July 1993, the unit is comprised largely of top talent raided from other big-name consultancies. In the past year, EDS has also bought out seven small consulting companies. Its client list includes Birmingham Steel Corp., Xerox Corp., Natwest Bank and Sprint Corp.

EDS' string of buyouts is in line with a larger industry trend toward full-service companies offering strategic business consulting, systems integration and outsourcing. Both Andersen Consulting and Computer Sciences Corp. (CSC) have already moved in this direction.

In April, Andersen teamed with General Electric Capital Corp., which will provide mainframe computing services to Andersen clients. CSC, meanwhile, offers strategic consulting through its CSC Index, Inc. unit.

The newly merged EDS/Kearney entity will operate as an EDS subsidiary, with its headquarters in Chicago under the A. T. Kearney name.

"We know the marketplace values the A. T. Kearney brand," said current Kearney Chief Executive Officer Fred Steingraber, who will be CEO of the merged company.

But analysts predict many of A. T. Kearney's biggest guns will take their share of cash from the sale — estimated at nearly $5 million for each of the company's 120 shareholding executives — and exit the scene.

"The only reason they've agreed to [be sold] is they've been bought off," said Stan Lepeak, a senior analyst at Meta Group, Inc. in Stamford, Conn. Six hundred million dollars "thrown at a relatively small group of partners is too much to pass up. With the average partner getting something like $4.8 million, they aren't likely to stick around," he added.

Last week, EDS officials said they expect the merger will be approved by early September or October.

Merger ahead

A. T. Kearney

HEADQUARTERS: CHICAGO
NUMBER OF CONSULTANTS: 1,100
1994 REVENUE: $346 MILLION

Electronic Data Systems

HEADQUARTERS: PLANO, TEXAS
NUMBER OF CONSULTANTS AT ITS NEW YORK-BASED CONSULTING UNIT: 1,200
1994 REVENUE: $10 BILLION
1994 CONSULTING REVENUE: $200 MILLION

Take the money and run

Last week, EDS senior vice president Gary Fernandes, who will be chairman of the company's new A. T. Kearney subsidiary, publicly acknowledged that some Kearney consultants were likely to leave despite incentives that are built in to the merger agreement. As a result, the full $300 million in stock would probably not be paid, he said.





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Video nets stall; data nets rev up

Delays deflate vendor expectations

By Neal Weinberg

The major hardware and software vendors have been busily jockeying for the inside track in the race to develop interactive video. Unfortunately, the market has yet to leave the starting gate.

A combination of lukewarm customer response, vexing technological questions and huge costs is delaying the bulk of initial deployments from mid-1996 to late 1997. Hence, widespread consumer availability is now estimated to be a good five years away.

Both US West, Inc. in Denver and Bell Atlantic Corp. in Philadelphia, recently withdrew applications to build video networks for those reasons, analysts said. And just last week, industry pioneer Interactive Network, Inc. in San Jose, Calif., was forced to pull the plug on technology trials in four cities when it ran out of cash.

Video dial tone

The following companies have FCC approval to do interactive video tests:

Company	Test location
Bell Atlantic	Northern Virginia
BellSouth	Chamblee, Ga.
Carolina Telephone	Wake Forest, N.C.
Nynex	New York
Southern New England Telephone	Hartford, Conn.
US West	Omaha

Predictable

The delays come as no surprise to Peter Ryus, director of worldwide marketing and development for Digital Equipment Corp.'s video and interactive information services. Not only are companies still figuring out which network architecture to use, but the true costs are also "hitting home," Ryus said. He also acknowledged that the technology is not there yet.

Digital, which provides media servers to US West and Nynex Corp., has had to scale back its revenue projections. But there is a plus side. "This gives us a little bit of breathing room on our own development. My gosh, we're still racing to put a lot of this stuff together," Ryus said.

Tim McElgunn, managing analyst at Datapro Information Services Group's convergence service in Delran, N.J., adds, "Let's face it, this stuff is complex. It's a massive client/server issue with a number of [data] streams flying back and forth."

The companies that offer the service have to figure out how to manage the data, track it, protect it from theft and bill it, he said. "You've got this hype/disenchantment/reality cycle," McElgunn said. At this point, "everybody's getting kind of realistic."

"People are taking stock because everyone knew going in that [it] was a great unknown adventure," said Craig Watts, corporate communications manager at Pacific Telesis Group in San Francisco. "Some of the companies are rethinking their initial strategy."

Trials and tribulations

Philip Sirlin, an analyst at Wertheim Schroder & Co. in New York, said the early trials have been disappointing because the programming has not been there. "It's like building a shopping center and only filling four or five stores and not bothering to pave the parking lot so people have to crawl through the mud to get there."

The initial question for suppliers is whether to deploy intermediate technologies such as wireless or hybrid cable or move directly to full fiber-optic. Nynex, for example, will initially use wireless when it offers service to customers in Rhode Island and Massachusetts, according to company spokesman Glen Brandow.

And Pacific Telesis Group, which is using Hewlett-Packard Co. servers and Oracle Corp. software, is launching a trial later this year using a hybrid of fiber-optic and coaxial cable. Pacific Telesis Group is shooting for general deployment in 1998 or 1999.

As the trials roll out, the Baby Bells and cable companies will try to determine the level of consumer interest in interactive video. "It remains to be seen whether the consuming public is stomping their feet and saying, 'I can't wait,'" said Walter Maio, an analyst at Link Resources, Inc. in New York.

Herb Edelstein, principal at Euclid Associates, Inc. in Potomac, Md., questioned whether interactive video is commercially viable. "Everybody believes this is a huge multibillion-dollar market. I don't know if the business model is there to support it yet."

He said interactive video may be challenged by satellite-based TV or movies on CD-ROM.

But Sirlin said interactive video is "completely natural" and will slowly become accepted as way of retrieving data and watching movies on demand and for interactive shopping, sports and gambling.

AT&T blesses ATM future

CONTINUED FROM PAGE 1

move to service-based networks and to enable new types of interactions that haven't been possible before."

Analysts said the infrastructure upgrade sent a significant message to the information systems community.

"This is a shot across the bow for users — don't buy the hype about the death of ATM," said Joseph S. Baylock, an analyst at Gartner Group, Inc.'s Santa Clara, Calif., office.

The telephone colossus told attendees at its Interspan user conference in Dallas that its three-year plan for a network upgrade will focus on the following areas:

- Upgrading the network to support ATM. This means frame relay, private line and other services will be carried over ATM in the future.
- Deploying Fastar II, an upgrade to its Fastar intelligent call restoration system. Fastar is the technology AT&T uses to seamlessly reroute calls when lines are cut or switching equipment fails.
- Doubling the capacity of its Synchronous Optical Network (Sonet) equipment from 500,000 calls per hour to 1 million calls per hour.
- Improving its international transmission routing as part of these announcements.

AT&T did not discuss future service offerings for its new networks and did not publish any pricing schemes. But officials said users could begin planning applications that might use the increased speed of the network. It also means frame-relay users will be able to use that high-speed data transfer technology interoperably with ATM or private lines.

Analysts said that while the ATM piece is the most significant long term, the reliability-boosting Fastar II announcement will have the most impact on users initially.

"Fastar II is a significant announcement for big data networking customers, and ATM is a reality check for" that technology, said Rick Malone, a principal at Vertical Systems Group, Inc., a Dedham, Mass., market research firm.

Other users said ATM will play a role for them in the future, especially as telephone companies build it into their networks.

"If it works well and reliably, there's a real good chance we'd jump into that arena," said Jne Andres, network manager for the control centers network at Bonneville Power Administration, a utility in Vancouver, Wash. He said ATM is too new and lacks standards right now, but by the time AT&T finishes its deployment, that may have changed.

The infrastructure upgrade is under way in Atlanta and the Washington-Baltimore, Sacramento/San Francisco areas. Malone said AT&T will save money with the Sonet upgrade. It will double AT&T's 4ESS switches' capacity from 500,000 calls to 1 million calls an hour.

ATM helps a Vancouver, B.C., hospital speed its diagnoses. See page 68.

Intel chip

CONTINUED FROM PAGE 1

up this access by acting like an I/O traffic cop, according to Ted Julian, editor of "The Gray Sheet," an industry newsletter published by International Data Corp. in Framingham, Mass. Instead of making the CPU handle all the I/O tasks, the intelligent I/O subsystem directs and handles most of it, he said.

For example, an i960 RP processor integrated on an Ethernet card will be able to run most of the I/O processing functions directly on the card, resulting in greater throughput and a lower CPU utilization rate. Both factors boost system performance.

The chip will also ease I/O expandability. That is because the i960 RP features an integrated Peripheral Component Interconnect (PCI) bridge that will allow systems vendors to add more PCI expansion slots to their servers. Currently, PCI bus-based servers are restricted to four PCI add-in cards.

This means that apart from an overall increase in system performance, users will be able to hang more network and storage devices on their PC servers.

And because the chips can be integrated directly onto a server's motherboard or I/O adapter cards, they should enable the creation of more low-cost intelligent adapter cards for PCI bus-based servers.

The first implementations of Intel's intelligent I/O subsystem are expected to be installed in P6-based servers. Intel said it expects to ship P6 servers by the first quarter of 1996.

The need for increased I/O capabilities is being driven by emerging applications such as multimedia and videoconferencing. Today, despite the increased speed at which processors such as the Pentium can crunch applications, PC servers are seriously hampered by the inability of the architecture to feed data fast enough to match the CPU's ability to process it.

Currently, many I/O tasks relating to networking and storage interfaces such as RAID, SCSI, Ethernet, Asynchronous Transfer Mode and Fibre Channel are handled by the server's main CPU, thereby seriously degrading overall system performance. Off-loading these tasks to an intelligent I/O subsystem will allow the CPU to crunch applications faster.

Under pressure

The following technologies are increasing demands on server I/O subsystems:

Networking

Now: Technology is moving from 10M bit/sec. Ethernet to 100M bit/sec.
Future: 155M bit/sec. ATM in 622M bit/sec.

Storage

Now: Technology is moving from 20M bit/sec. SCSI to 40M bit/sec. Ultra SCSI
Future: 100M bit/sec. Fibre Channel

Also, the integration of these capabilities into a single PCI chip is expected to reduce costs and spur rapid development of low-cost intelligent I/O cards from adapter card vendors.

Vendors such as Tricord Corp. and NetFrame Systems, Inc. have used the technology for some time and tout it as a major differentiator between their far more expensive systems and PC-based servers.

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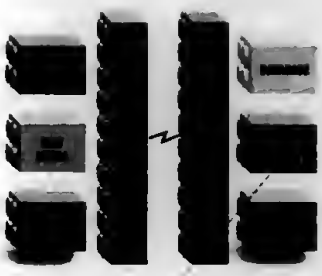
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PC software missteps taint IBM bid

Acquiring Lotus could bolster IBM's chances against Microsoft, but observers see obstacles

By Craig Stedman

Despite IBM's nearly flawless record of squandering chances in the desktop software market, users and analysts last week said the compoter giant may finally have gotten its head screwed on straight.

Straight enough to give its proposed buyout of Lotus Development Corp. a shot at success, anyway.

But not all were optimistic. And even those who had their thumbs up rattled off caveats that could turn an IBM/Lotus combination into another desktop failure rather than the longed-for multiplatform alternative tn Microsoft Corp.'s Windows hegemony.

The key issues IBM would face in digesting Lotus include the following, observers said:

- Promises that Notes will not be tilted toward OS/2 must be more than lip service. IBM especially would have in embrace Microsoft's Windows NT, reversing an early 1995 decision to push NT versions of tts software products into marketing limbo.
- tBM would need to keep the Notes development team intact and deliver the upcoming Version 4.0 on or close to schedule. Then Big Blue would have to strike a balance betweco giving Lotus autonomy and providing assistance to make Notes more scalable.
- IBM would have to show that it can develop — and then follow through on — an effective marketing strategy for competing against Microsoft.

"Notes is really the last bastion against an all-Microsoft world, but Lotus has been sort of marking time at best," said David Marshak, an analyst at Patricia Seybold Group in Boston. An IBM acquisition appears to be the best chance for Notes to survive long term against Microsoft, he added. However, IBM "is going to have to move NT way up" on the priority tist for releases of its software, he said.



Dave Montbriand

"Notes would be a good base to butld around for a desktop software business, but whether IBM can execute off of that base is the $64,000 question," said Rich Malone, chief information officer of Edward D. Jones & Co., a St. Louis hrokerage evaluating Notes IBM has shown "some flashes" of changing its stripes, "but there are times when t think it's the same old IBM," be added. "It just seems tike the layers of bureaucracy you have to go through are still there and a sense of urgency to get something done isn't."

"Hopefulty, the folks over at Lotus will hring some expertise to IBM as to how to deal with the PC software market," said Joe Waynick, assistant vice president of technical support at Union Bank in Monterey Park, Calif. "I've been telling IBM for years they needed to buy Lotus. Now it's just a matter of seeing whether they can capitalize."

John M Thompson, IBM senior vice presideot and group executive for software operations, vowed IBM would keep its hig mitts off Lotus' development efforts. "Lotus is the expert in groupware, and they're the experts on the desktop. The last thing I want to do is tell them what to do."

Despite IBM's earlier move to posh NT versions of its software into the hackground, Thompson insisted IBM will pursue a platform-independent strategy with Notes "The beauty of Notes is that it runs on all the different operating system worlds we needed," he said. "We are firmly committed to OS/2. But you will also see us develop for other platforms."

However, user reaction was mixed. Of 112 users surveyed last week by *Computerworld*, 48% gave IBM a good to excellent chance of keeping Notes platform-independent, while 47% said the chances of that were fair to poor.

After years of being "an abject failure" nn the desktop, IBM is "beginning to have a much greater understanding of the indnstry at large," said Matthew Cain, an analyst at Meta Group, Inc. in Stamford, Conn. "IBM has been humbled in this market."

Analysts credit IBM for making strides in other software areas. For exampte, it has rebounded from its AD/Cycle dehacle and has competitive application development products, said Judith Hurwitz, president of Hurwitz Consulting Group, Inc. in Newton, Mass. But its marketing has not caught up with the technology, she added.

Senior editor Michael Fitzgerald contributed to this story.

Desktop daze

IBM's PC software business has been more notable for its failures than its successes. Some if its more notorious flops include:

Product or initiative	End result
Topview graphical user interface	Launched in 1984 but abandoned two years later.
Desktop Software division	Started in 1989 to market applications from other vendors. Disbanded in 1991 after spending $100 million with little impact on the market.
Displaywrite	Character-based PC version of IBM's stand-alone word processor. Replaced by outside product that was dropped when Desktop Software division folded.
OfficeVision LAN 2.0	Low-end office software introduced in 1989. Scuttled in 1992 after many product delays and replaced by Notes reseller deal with Lotus.

OS/2 users see upside in Lotus grab

By Lisa Picarille

IBM Chairman Louis V. Gerstner may deny tt, but users and industry analysts said last week that IBM's determination to make OS/2 a success played a significant role in its $3.3 billion bid to take over Lotus Development Corp., a key OS/2 developer.

"I know Gerstner said this has nothing to do with OS/2, and I say, 'Baloney.' If this isn't a $3 billion commitment to OS/2 and the desktop, then what is?" asked Cary Serif, manager of applied technologies at Huntington Banesbares, Inc. in Columbus, Ohio, a large Notes stte and an OS/2 user with 1,500 ticenses.

"IBM is more concerned about Lotus' OS/2 products than it should be," said Jeffrey Tarter, editor of "SoftLetter," a newsletter in Watertown, Mass. "Although buying Lotus protects the only place generstng serious OS/2 applications."

"If anyone was questioning [IBM's] commitment to OS/2, that ought to clear thal up," said Paul Grayson, chairman and chief exeeutive officer of Microgratx, Inc., a Windows developer tn Richardson, Texas

> "Maybe they can change the name of Notes to Blue Notes. It's catchy."
>
> *— Bill Zak, president emeritus, New York OS/2 user group*

The move underscores IBM's recent attempts to boost OS/2 sales and stave off Microsoft Corp.'s forthcoming Windows 95. Predictably, Microsoft and Windows proponents said it is likely to be Lotos' software efforts on other platforms that are stifled by the deal.

"In a way, it's kind of too bad," said Bill Gates, Microsoft chairman and chief executive officer. "I think it's nice to see software companies independent of hardware companies."

In addition, IBM's proposed acquisition will, for the first time, put the company in the Macintosh software market. Apple Computer, Inc. declined to comment on how the takeover might affect Lotus' Macintosh development.

Although Lotus' CC:Mail and Notes products are popular applications with Macintosh users, the Cambridge, Mass., developer recently scaled hack its Macintosh spreadsheet effort.

Jesse Berst, editorial director of "Windows Watcher," a newsletter in Redmond, Wash., said, "Lotus has to be free to support the platforms it wants, and if it's only to suppurt what's politically correct at IBM right now, it will kill Notes."

Good news for OS/2 users

Still, some OS/2 users say the deal could benefit them.

Mike Anzis, vice president of information systems at Mazda Motor of America in Irvine, Calif., which has more than 2,300 copies of OS/2, said, "It certainly will be a boost for OS/2 for IBM to own Lotus. It shows a seriousness nf purpose with OS/2, and IBM's tevel of product support can only benefit users."

Senior editors Stuart J. Johnston and Rosemary Cafasso contributed to this story.

OS/2 is catching on in Europe. See page 49.

LOTUS ON THE BLOCK

Oracle users still await 'Notes killer'

By Kim S. Nash

As speculation simmered last week that Oracle Corp. won't sit still and watch IBM steal its groupware thunder, Oracle users wondered when they will see a production version of Oracle's long-promised Notes killer.

Oracle Groupware, formerly known as Documents, is anywhere from several months to a year late, depending on which of the Redwood Shores, Calif., company's shipment schedules is applied. The company began to talk about challenging Notes with its own groupware last September and has since revised its plans at least twice.



Oracle CEO Larry Ellison *says IBM's Lotus bid makes it 'difficult for anyone to bid against them'*

Though some pieces are available — such as an upgraded Oracle Office electronic-mail package — others are not. Among the laggards is a key document management component called Library.

Larry Ellison, Oracle's chief executive officer, last week evaded the topic of a possible counterbid to IBM's $3.3 billion offer for Cambridge, Mass.-based Lotus Development Corp. "Our move is to keep working on Documents," he said.

"A groupware product completely integrated with a distributed, replicated database is what the world wants. At least we think so," Ellison said. "That makes Oracle Documents very different from Lotus Notes or Microsoft Exchange." He was referring to Microsoft Corp.'s groupware offering, which is also behind schedule.

Oracle officials last week declined to specify reasons for its groupware delays.

The setback is not devastating to Oracle users because only a handful are beta-testing parts of Oracle Groupware. But for Oracle's grand goal of controlling an ever-growing groupware market, time is money, industry observers said.

And IBM's hostile bid for Lotus will only add to the pressure.

Groupware "is one of *the* PC products of the future," said Jim Moore, an analyst at brokerage firm Alex. Brown & Sons, Inc. in San Francisco.

Without ready groupware of its own, Oracle needs to, at least temporarily, latch on to Lotus' tails, Moore said.

That is partly what a joint development pact between Oracle and Lotus last September was designed to do. The firms agreed to build bridges between the Oracle database and Notes.

However, "an IBM takeover changes the landscape of Lotus' Notes business," acknowledged Nimish Mehta, vice president of Oracle's desktop products group.

Work on the bridges goes on, "but now we have to see how everything shakes out," Mehta said.

For example, as Lotus' parent, IBM could decide to force-fit Notes onto its own DB2 family of databases, shutting out Oracle7 and other databases. Oracle would not take kindly to that, Mehta said.

If that happens, "our relationship [with any surviving iteration of Lotus] would be over," he said.

Mehta also denied a recent published report that Oracle is or was planning to resell Notes. "That's not going to happen that I'm aware of," he said.

A successful IBM takeover of Lotus would also puncture Oracle's oft-stated dream to roll over Microsoft, users and analysts said.

Ellison has repeatedly said he wants Oracle to surpass Microsoft as the world's dominant software company despite Oracle's relative lack of experience with PC products.

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Jeffrey Tarter
Editor of "Soft Letter" newsletter

"IBM has been known to have two or more different thoughts at once, any of which are mutually contradictory. Let's put it like this: IBM has less of a problem than Lotus when it comes to working with their enemies."



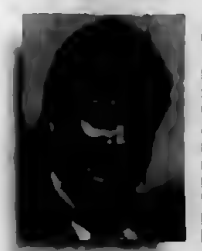
Craig Goldman
CIO, Chase Manhattan

"I don't believe IBM is going to do anything to disrupt [Lotus]. It's a key asset, and it's an intellectual asset. They've got to be extremely careful in how they handle this acquisition, without disrupting the talent pool."



Allan Ditchfield
CEO, Progressive Insurance

"Is [Gerstner] going to be able to keep the braintrust? I think that's important. My sense is [that Lotus developers] do have an ambition and will see IBM as a worldwide lever."



Philippe Kahn
Chairman, Borland International

IBM's move is "fundamentally a reaction against the fact that Windows 95 and Windows NT [are] really strong. IBM needs Notes. The bottom line is that the counterpunch of Windows 95 and Windows NT is a very powerful combination."



Bill Gates
Chairman, Microsoft

"I think [the takeover attempt is] fascinating. It really has a lot to do with execution. To what degree do Lotus employees [want] to be IBM employees?"



Sheldon Laube
Chief technology officer, Novell

"For those sitting on the fence and wondering if [groupware] is a flash in the pan, [the IBM bid] legitimizes [the technology]."

Future of GroupWise looks bright in wake of IBM move

Novell's groupware users see benefits from proposed takeover of Lotus

By Laura DiDio

Takeover bid? What takeover bid? For Novell, Inc. it will be business as usual, whatever the outcome of IBM's proposed hostile acquisition of Lotus Development Corp.

That was the attitude last week among many users, analysts and Novell executives, who predicted little or no impact from a merged IBM/Lotus on Novell's long-term business plans.

"So what? If IBM and Lotus merge, it won't have any impact on Novell or GroupWise," said Gary Wilkerson, supervisor of end-user services at health care provider Kaiser Permanente Health Plan, Inc. in Atlanta, which uses Novell groupware.

Dean Johnson, information delivery manager at Freudenberg-NOK General Partnership, an auto parts manufacturer in Bristol, N.H., agreed. "As far as Novell's concerned, their long-term strategic battle is still with Microsoft," he said.

Novell users remain confident. An exclusive *Computerworld* survey last week asked 112 IS managers who they would like to see take over Lotus if the IBM bid falters. Novell was the clear winner: 37% picked it as the preferred parent for Lotus. Oracle Corp. garnered 16% of the vote, AT&T Corp. 13% and Microsoft Corp. 8%. Other vendors accounted for 9%, and 18% of those surveyed said they did not know.

Little or no effect

Novell executives were upbeat about the proposed takeover.

"The overall effect on our GroupWise applications business will be negligible, but the impact on the overall groupware market will be tremendously positive," said Jeff Waxman, executive vice president and general manager of the company's Applications Group in Orem, Utah. "From our standpoint, IBM's decision to go after Lotus legitimizes the entire groupware market," he added.

The apparent industry sentiment is that if Novell stays on course to enhance the GroupWise, PerfectOffice and Office suites, it has a chance to increase its market presence.

One year after the Novell/WordPerfect merger, most agree it was managed fairly well and the products are now experiencing healthy growth. "The interoperability between the former WordPerfect software offerings and Novell's NetWare is pretty good. Overall, I give the products a good rating, although migration and technical support issues remain very problematic," Wilkerson said.

GroupWise's share has doubled from less than 10% of the groupware market to more than 15% in the past year, said Jamie Lewis, president of The Burton Group in Salt Lake City. Close to 3.5 million people use GroupWise, Novell claimed.

Reaping the benefit

Meanwhile, industry watchers theorized that the proposed merger and ensuing confusion in Lotus' user base could work in Novell's favor by making GroupWise more attractive.

"Any merger and a hostile bid like IBM's for Lotus will only serve to put more pressure on the marriage, and that benefits Lotus Notes competitors," said Bob Sakakeeny, an analyst at Aberdeen Group, Inc. in Boston.

Lewis agreed, saying IBM's hostile takeover will "minimally distract Lotus from fulfilling the promise of the Notes architecture, and in a worst-case scenario, it could possibly cause some top developers to exit."

If the merger does happen, said Jeffrey Tarter, editor of the "Soft Letter," a newsletter in Watertown, Mass., IBM and Novell may cooperate and compete. "IBM has less of a problem than Lotus when it comes to working with their enemies," he said. "Lotus saw Novell as a competitor in the suite market. Probably IBM and Novell would have an easier time working together."

Yet Alan Dolgoff, senior network specialist for the state of Minnesota Department of Revenue in St. Paul, said the combination of Lotus' Notes technology and IBM's capital and marketing muscle could prove too formidable a competitor for Novell, which he said is "stretched too thin."

Computerworld Editor Paul Gillin listens in on an imaginary phone call between IBM's Lou Gerstner and Lotus' Jim Manzi. See editorial, page 36.

No more big bad wolf

In the 1970s, the thought of IBM making a $3.3 billion hostile acquisition was unthinkable because the government was in a massive antitrust lawsuit trying to break IBM into small pieces. The prevailing antitrust theory was "big is bad."

Today's situation is different. Antitrust experts said last week IBM's proposed acquisition of Lotus would probably emerge from a government review unscathed unless an argument could be made that it reduces competition in the groupware market.

Instead of bigness, antitrust agencies now look at market share in niches. Because IBM and Lotus are strong in different markets — IBM in mainframes and Lotus in PC applications — the deal would not increase concentration in a narrowly defined market, several antitrust attorneys said.

Further, vertical integration is not an antitrust problem because OS/2 does not have a dominant market position, said Joe Sims, an antitrust lawyer at Jones, Day, Reavis & Pogue in Washington.

But if IBM boosted its power in the mainframe market, it could still face antitrust scrutiny, said Steven A. Newborn, a partner at Rogers & Wells in Washington and a former official at the Federal Trade Commission.

In fact, the deal might be viewed as pro-competitive if it creates "a more formidable competitor against the 800-pound gorilla, Microsoft," according to another antitrust specialist.

— *Mitch Betts*



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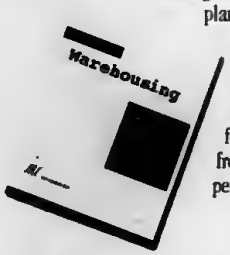
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IS seen as re-engineering blockade

By Joseph Maglitta
NEW YORK

Information systems pros have a long way to go to shake their image as the wreckers and resisters of re-engineering.

"If there's a reef that re-engineering is going to run into, it's in the systems development area," said Richard L. Harder, executive director of strategic management at BellSouth Telecommunications, Inc. in Atlanta.

Variations of that view were echoed at last week's annual Business Re-engineering Conference here.

In general, the 200 or so business executives attending the two-day event agreed that many technology groups remain unable or unwilling to adequately support corporate redesign efforts.

More firms said that as a result, their re-engineering leaders are keeping tighter control of IS groups that support redesign projects. Some, such as BellSouth, which has 13 major re-engineering projects under way, said they want to ensure that IS plays its proper supporting role.

"In the past, the systems have driven the process," Harder said. "That's how we got into the hind we're in."

Others, concerned that slow application delivery will derail key redesign efforts, said they are increasingly turning to outsourcers for systems development and are buying packaged client/server software when possible.

Steven P. Bottcher, vice president of selling and delivery at Pepsi-Cola North America, said, "The way we get speed into [information technology] is to take something that's already available and adapt it."

> "People who don't get on board have to be removed or the whole ship will go down."
>
> — Michael B. Emery, senior vice president of operations, Du Pont

Many also acknowledged that serious obstacles remain in IS and elsewhere. "Re-engineering has gotten a bad name," said Scott E. Bates, senior vice president at The First National Bank of Chicago. The biggest problems are fear of job loss and sabotage, especially by middle managers, speakers agreed.

Several speakers urged re-engineering bosses to get tough and lay off those who do not support corporate redesign.

"People who don't get on board have to be removed or the whole ship will go down," said Michael B. Emery, senior vice president of operations at Du Pont Co. in Wilmington, Del.

Reuse it or lose it

In-house development was a last resort for many. "We will reuse before we buy and buy before we build," said Wayne Spence, who led a highly successful re-engineering effort when he was director of business and strategic services at Texas Instruments, Inc.

Similarly, Zeneca, Inc., a Delaware chemical maker, has hired Electronic Data Systems Corp. to develop a network and database system that expands its newly re-engineered divisional systems, said Gerald J. Quinn, director of core business systems and re-engineering at subsidiary Zeneca Agricultural Products.

Lack of IS staffs skilled in Bybase, Inc. unit Powersoft Corp.'s PowerBuilder, C++, object-oriented tools and other popular client/server products were also cited as reasons for hiring outsiders for re-engineering efforts.

To help its IS staff adapt to ongoing re-engineering, Du Pont recently awarded Andersen Consulting a $30 million contract to teach leadership and team skills to more than 1,400 staffers.

While early efforts have focused on cost-cutting and improving internal operations, second-wave re-engineering stretches beyond corporate walls. It includes customers, suppliers and distributors.

The dramatic growth in the volume and content of electronic mail is becoming a major problem for network administrators around the world. The number of e-mail users has exploded, and what arrives in e-mail boxes can boggle the mind. Mailboxes and message stores designed as temporary holding places have become de facto repositories for an indiscriminate mix of junk mail and important corporate knowledge. This problem has intensified as messaging systems have evolved.

First generation electronic mail systems in the late 1970s enabled the transmission of simple, unadorned text messages. By 1985, a second generation of e-mail systems allowed users to attach documents to their messages. In 1990, e-mail's appeal broadened again when users could include rich formatted text, embedded graphics and tables in their messages. Soon there was no limit to what people could send — and message sizes grew accordingly.

The first three generations of messaging systems have relied upon a store-and-forward mechanism where mail is "pushed" to the recipient's inbox. The push model places a burden on users and administrators to read, sort and dispose of an increasingly unwieldy volume of information — some of it critically important to the business, much of it irrelevant or outdated.

Now, a new generation of messaging system has arrived. This 'fourth' generation of e-mail is revolutionary because it combines the 'push' model of earlier systems with a 'pull' component based on a secure, distributed object store for managing messages and related documents.

For example, instead of attaching a spreadsheet to a mail message and 'pushing' a copy to every recipient, fourth generation messaging systems can provide links to information that reside in a shared database — even on the World Wide Web. The recipient can choose to 'pull' the information he or she wants to view. Rather than being overwhelmed with information, these



links ensure everyone gets the most current information, if and when they need it.

This new fourth generation messaging architecture vastly reduces transmission and storage requirements and simplifies system management. In addition, a powerful technology called bidirectional replication permits automatic or scheduled synchronization of mail messages between the server and desktop or laptop computers. This facility means mobile employees can now work productively with or without connection to the network.

Groupware: The Natural Evolution of Messaging

A messaging system and a distributed object store are two of the three key components of groupware. By adding a powerful application development environment that is seamlessly integrated with these components, a simple communications infrastructure can be transformed and extended into a rich platform for building custom applications. These applications manage the communication, collaboration, and coordination of an organization's crucial business processes. In this sense, groupware is not a separate product category, but rather, messaging's natural evolution.

Only an integrated messaging and groupware infrastructure is capable of delivering the kinds of strategic business applications that enable measurable, long-term competitive advantage. By comparison, third generation systems with layered, cobbled-together integration become increasingly rickety as they try to scale or are forced into new application areas. An integrated messaging and groupware infrastructure can maximize your organization's current investment in messaging systems, while positioning your company for the new breed of applications that manage strategic business processes.

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Compaq CEO rebuts critics, marches on

Eckhard Pfeiffer steers company into new territory

After grabbing the reins of a faltering Compaq Computer Corp. in October 1991, Chief Executive Officer Eckhard Pfeiffer transformed the company from a $3.3 billion PC clone maker into a $10.9 billion systems vendor. In the process, the company ousted IBM from the top position in desktop hardware. It now stands poised to make what several analysts consider a serious bid for the traditional midrange territory with PC-based architectures. But troublesome problems could emerge at the lower end of the business, especially in the consumer market. Here, Pfeiffer talks to Computerworld editor Paul Gillin and senior writer Jaikumar Vijayan about these issues.



"We believe that we can build or buy as cost-effectively as any Intel combination can do."
—Eckhard Pfeiffer

Q Companies such as Dell and Gateway seem to be ahead of Compaq in announcing products based on Pentium. This leads many to say that Compaq has dropped the Pentium ball. Do you agree?

A Absolutely not. We supported [the] Intel strategy more than anybody else in the preannouncement of Pentium and [after the] announcement of the Pentium. What created the perception that we were behind on Pentium . . . was not having a consumer product in the fourth quarter of 1994. [The choice we had then] was are we going to put a feature- and function-loaded 486-generation [product] during the second half [of 1994], or are we going to throw these development resources on the Pentium? We analyzed where pricing was going to be [and] what level of volume was going to be Pentium vs. 486. And we made the 486 decision.



Photos by Mark Gabbe

Compaq's Pfeiffer: *'You can't sit on yesterday's success model and not be willing to change'*

Q All these years, Compaq has prided itself on its engineering and technical prowess, which you say set you apart from others. Now you have begun to outsource key manufacturing jobs to Taiwanese subcontractors such as Ivantec Group and Mitac International Corp. Why such a fundamental shift?

A We are living in a different age. We are in a different place on the life cycle curve of this industry. You can go back and point [to] periods and events that somehow changed this industry. I would say one of the more recent ones was the phenomenon of Compaq doing spectacularly well for almost 10 years, and then all of a sudden the success model isn't working. Why? Because everything around it had changed, and we had not gone along with it. What we are doing now is moving along with trends that we consider significant. You can't sit on yesterday's success model and not be willing to change.

Q So what are some of your initiatives going to be during the next 18 months in the enterprise server space?

A We just recently aligned our entire worldwide organization in a very customer-specific segmentation. We have our major accounts focused on the Top 50 companies. Another segment is the commercial segment, the U.S. government and education. We are building up the strategies and resources to deal with each of these segments.

In many of these industries, the [chief information officers] are looking today at the cost factor: how to compete, how to be flexible, how to get the leverage and where it is taking them. It is taking them to client/server solutions that in the long run will offer the best price performance. Some have come to that conclusion. Others aren't there yet, but they will come along.

Q What do you see as some of the issues as you move the company from a purely PC company to a computer company supplying a broader range of hardware?

A It's going to be a new way of dealing with enterprise computing. It is not going to be like the old way, where there was total control due to the proprietary situation. Open standards have evolved to the point of maturity. It's happened.

Gradually [the enterprise is moving toward] a PC-based client/server environment. The progress in hardware performance, operating system availability and the other pieces is getting stronger and stronger, and we are in the forefront. We need to see and test what the model of the future is going to look like. Right now it looks good.

Q The consumer business has been one area where Compaq is thought to be underperforming relative to other areas of your business.

A The big challenge, of course, is the consumer business, which has been brand-new to us. Right now, it is really a matter of getting everything lined up properly, [but] I think we have been going as fast as we can.

The opportunities are very large, [and] we are targeting it with an even clearer focus and a more dedicated organization and giving the business its own identity . . . and the freedom to do what is right in that segment.

Q As Intel integrates more and more system level capabilities on the chip, where is it going to be possible for you to differentiate at the hardware level?

A The fundamental movement is a given: that as you reach higher and higher levels of integration, more and more of that is chip technology, and you can just as well put it on the board. With that, Intel is taking into its own hands, and under its own control, when it happens and how fast it can happen.

Briefs

AST restates results

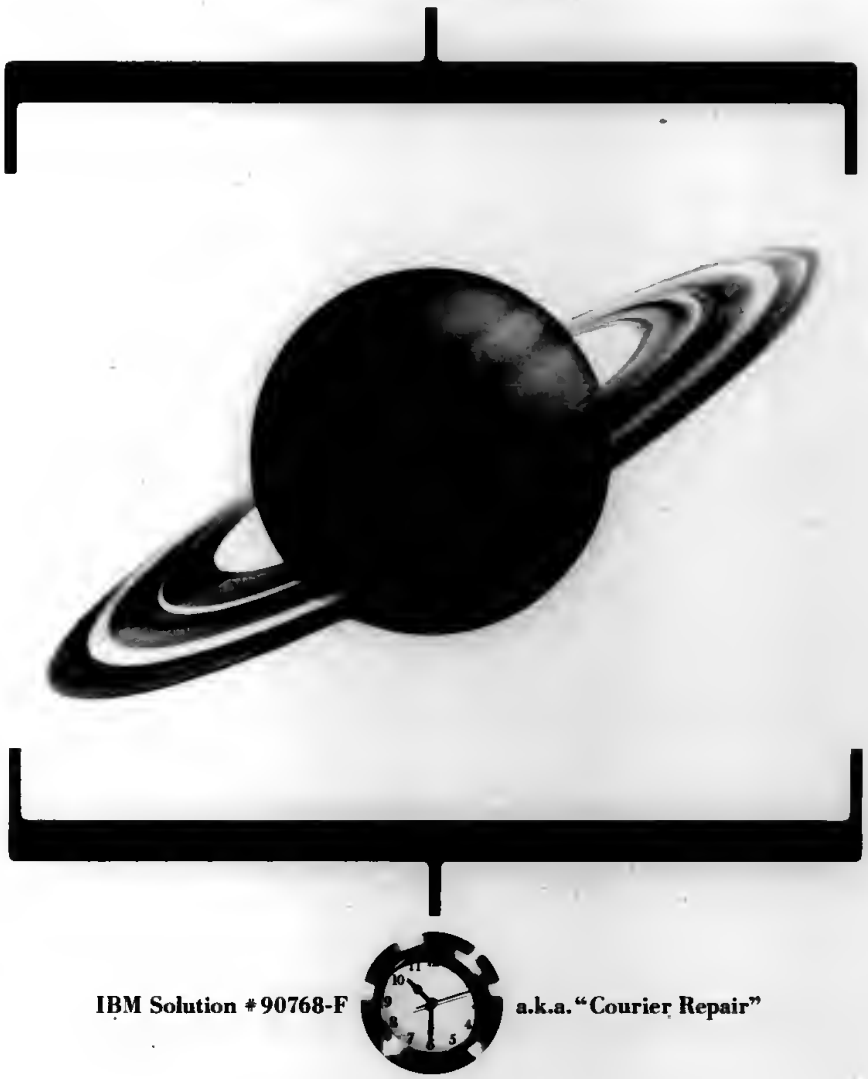
Samsung Electronics Co. has extended its cash tender offer to acquire up to 40.25%, or 5,820,000 shares of common stock of AST Research, Inc. at $22 per share. This accommodates a special June 30 meeting at which Irvine, Calif.-based AST's stockholders will vote on the $377.5 million strategic investment. Separately, AST is restating its financial statements for the fiscal year that ended July 2, 1994, and subsequent quarterly periods. The restatement relates to adjustments from AST's acquisition in 1993 of the PC manufacturing operations of Tandy Corp. The restatement will cut AST's net income in the fourth quarter of fiscal 1994 from $14.1 million to a net loss of $8.1 million and will increase pretax income for the subsequent periods by roughly $3.6 million per year due to the reduction in amortization associated with the lower amount of goodwill. AST's assets and shareholders' equity in the fourth quarter of fiscal 1994 will be reduced by $32.7 million and $22.2 million, respectively.

Cisco revamps units

San Jose-based Cisco Systems, Inc. has created five distinct business units that reflect its major networking product groups and has named a vice president/general manager to head each group. Each of the five business units — Workgroup, ATM High End, Access, Core and IBM Internetworking — will have its own marketing and engineering organization. The new structure formalizes a product sector grouping that emerged with the company's expansion into new business areas and its acquisition during the past two years of several smaller firms.



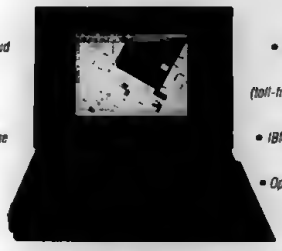
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Client/server tools keep on coming

By Rosemary Cafasso

Yet another round of client/server tools will roll out this week at the Database & Client/Server World conference in Boston.

The announcements will range from data access and development tools to systems management utilities and application upgrades such as an overhauled financial applications suite from Flexi-international Software, Inc.

Trinzic Corp. in Redwood City, Calif., will weigh in with Forrest & Trees 4.0, an end-user data analysis tool that targets client/server players such as Burlington, Mass.-based Cognos Corp. and Business Objects, Inc. in Cupertino, Calif., both of which offer bulletproof query environments that allow novice users to access data. Trinzic said Release 4.0 will let users do ad hoc queries without SQL knowledge.

Other data access tools scheduled for announcement include the following:

- **SAS Institute, Inc.** in Cary, N.C., plans to launch OLAP++, a package that includes object libraries and installation services so users can build on-line analytical processing applications.
- Atlanta-based **Dun & Bradstreet Software** plans to announce an effort to integrate Pilot Software, Inc.'s data analysis tools into the D&B SmartStream client/server platform. Pilot was acquired last year by The Dun & Bradstreet Corp., D&B Software's parent company.
- On the applications front, **Flexiinternational** in Shelton, Conn., said it will launch Release 3.0 of its financial suite. It will also announce support for IBM's DB2 on multiple platforms, including mainframes. Several other client/server application providers, including SAP AG in Walldorf, Germany, are also considering supporting the IBM mainframe environment.
- **Walker Interactive Systems, Inc.**, another provider of client/server financial software, will use this week's conference to launch WalkerClient. This package is actually a collection of components that include a graphical user interface, development tools and templates to customize the software with technologies such as voice recognition.

The San Francisco-based company said users can purchase components separately or select the entire WalkerClient package. Components will range in price from about $2,500 per user for the application development kit to upward of $17,000 for an application template that supports 24 users.

Development tools will also be released at this week's conference. New York-based Jyacc, Inc., for example, plans to introduce Jam Version 7.0, the latest release of its application development environment. It will include several tweaks such as screen wizards, improved undo facilities and boosts to the JAM scripting language.

Custom-made.

SQL Financials, Inc. in Atlanta has elected to bypass the Database & Client/Server World conference and will instead roll out a customization tool set next week.

Company officials said the tool set, code-named Workbench Manager, will enable users of its client/server financial software to tailor SQL Financial applications by making changes to a software front end as opposed to mucking about with source code. Workbench Manager will ship in September and will cost about $100,000.

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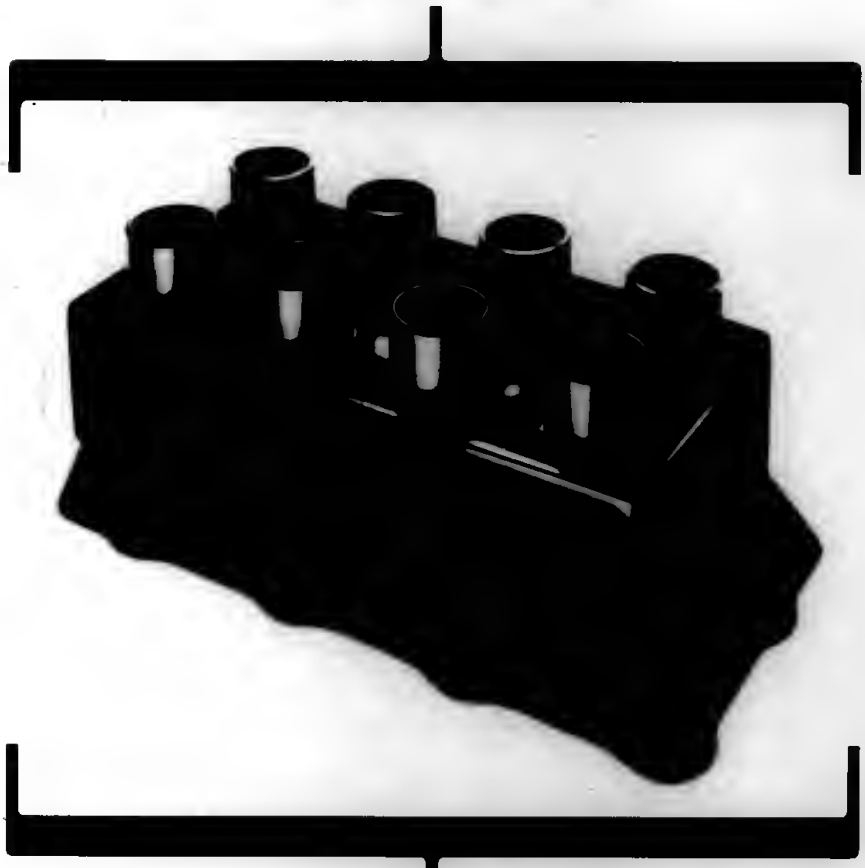
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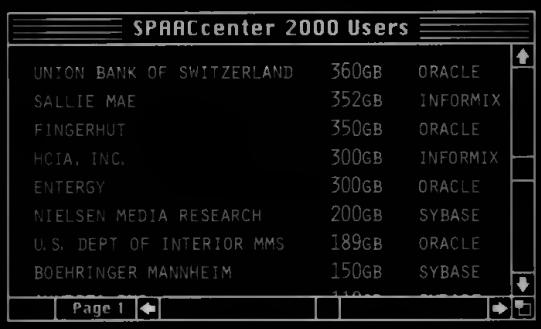
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"We are creating the opportunity to chart our future before it begins."

—Patrick McGovern
IDG Chairman

Celebrating the global reach of technology





By Tim Ouellette

Surrounded by the classic beauty of the National Building Museum, computer industry leaders celebrated the best examples of how modern computer technology improves society at the Seventh Annual *Computerworld* Smithsonian Awards last Monday.

The awards, which were given at a ceremony in Washington, "have the energy to illuminate achievements and the momentum to spread awareness of this technology around the world," said Patrick McGovern, chairman and chief executive officer of International Data Group and chairman of the awards committee.



One award recipient exemplified the international reach of the proceedings: the Norwegian Police Department won for its computer-based security support system, which it set up for the 1994 Winter Olympics in Lillehammer.

"We are happy to receive international recognition for our system," said Per Waage of the Norwegian Police. The system replaced an array of telephones, radios and fax machines with a computer system aided by a geographical positioning module.

Three of the awards went to those innovating with another world-reaching technology — the information superhighway. And one leadership award went to Marc Andreessen, creator of the Mosaic Internet browser.

With an eye toward the future, the use of information technology in education was given special attention. Computers were unproductive in business "until corporations changed the way they did business," said Professor Orville Chapman of the University of California at Los Angeles. "Unless we change how we teach and what we teach" computers will be unproductive in education, he added.

McGovern said the industry should also look to the exploratory interests of children for the lead in discovering uses for technologies. "They exhibit the same impatience with the status quo that drives all those nominated tonight," he said.

For instance, C. Lee Morse, chairman of award winner PharMark Corp. in Arlington, Va., said he and his wife started their company to help clarify the mishmash of drug prescriptions. Industry estimates put the number of people suffering prescription drug-induced illnesses at seven of every 100 patients. Morse's system uses computer algorithms to predict whether patients' numerous drug prescriptions place them at risk for additional illness.

Morse said an entrepreneur's work on these technologies is usually very lonely. But on an occasion like this one, everyone celebrates, he said. "For once in an entrepreneur's career, they are not alone," Morse said.

1. Boeing representatives Lyle Eveland, Larry Olson and Charlie Kyle toast their award in the manufacturing category.

2. David Allison and Spencer Crew (left), both from the Smithsonian Institution; IDG Chairman Patrick McGovern; Master of Ceremonies Susan Stamberg; and Computerworld President Gary Beach congratulate Linda Roberts, director of the Office of Education Technology at the U.S. Department of Education, on her leadership award.

3. Sigurd Skjaeveland and Per Waaga of the Norwegian Police.

4. C. Gordon Bell speaks about the early days in the development of the Internet.

5. More than 800 computer industry leaders filled the National Building Museum in Washington for the ceremony.

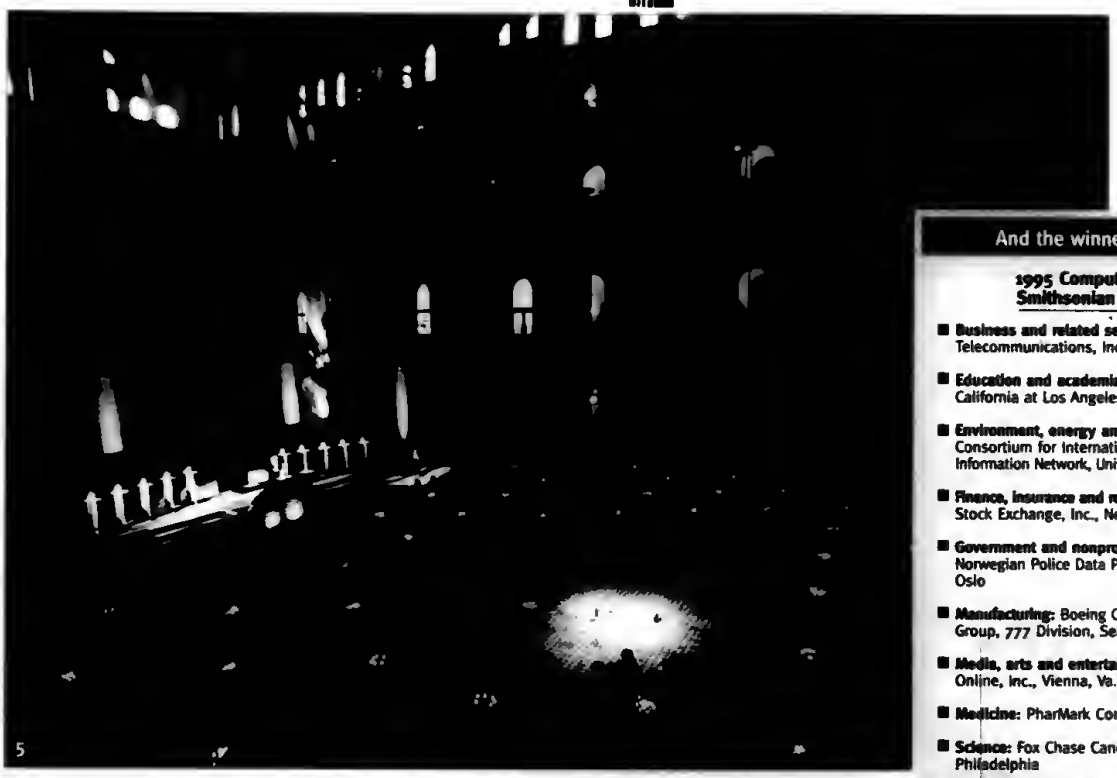
6. The Department of Education's Linda Roberts said information technology is making a difference in schools, but it is being targeted by politicians for cutbacks.

7. Master of Ceremonies Susan Stamberg, of National Public Radio's "All Things Considered," pictured here with Patrick McGovern, praised the awards finalists' passion to create.

8. Celebrating a win for the New York Stock Exchange (NYSE): Front row: Jeri DiCostanzo, Science Applications International Corp. (SAIC); Valerie Brown, NYSE; and Joe Claque, Hewlett-Packard Co. Back row: Joseph Kubat, SAIC; Marie Giangrande, HP; Dennis Covelli, NYSE; and Joseph Gabriel, NYSE.

9. Andrew McCammon, a professor at the University of San Diego, speaks on research practices in computer simulation for chemistry.





5

Photographs by Stan Barough



6



7



8

Want to see students accessing supercomputers to do research? Or a wind shear warning system for airplanes? Information on these Computerworld Smithsonian Awards finalists and more can be found on the Internet at http://innovate.si.edu

And the winners are . . .

1995 Computerworld Smithsonian Awards

- **Business and related services:** MCI Telecommunications, Inc., Rye Brook, N.Y.
- **Education and academia:** University of California at Los Angeles
- **Environment, energy and agriculture:** Consortium for International Earth Science Information Network, University Center, Mich.
- **Finance, insurance and real estate:** New York Stock Exchange, Inc., New York
- **Government and nonprofit organizations:** Norwegian Police Data Processing Services, Oslo
- **Manufacturing:** Boeing Commercial Airplane Group, 777 Division, Seattle
- **Media, arts and entertainment:** America Online, Inc., Vienna, Va.
- **Medicine:** PharMark Corp., Arlington, Va.
- **Science:** Fox Chase Cancer Center, Philadelphia
- **Transportation:** AlliedSignal, Inc., Torrance, Calif.

1995 Smithsonian Information Technology Leadership Awards

- **Cray Research Award for Breakthrough Computational Science:** Professor J. Andrew McCammon, University of California at San Diego
- **MCI Award for Innovation:** C. Gordon Bell, chief scientist, Stardent Computer, Inc.
- **Price Waterhouse Award for Lifetime Achievement:** William Hewlett and David Packard, co-founders of Hewlett-Packard Co.
- **Science Applications International Corp. Award for Global Integration:** Marc Andreessen, vice president of technology and co-founder of Netscape Communications Corp.
- **Zenith Data Systems Award for Education:** Dr. Linda Roberts, director of the Office of Education Technology, U.S. Department of Education



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Powersoft beefs up image, PowerBuilder performance

By Elizabeth Heichler
ORLANDO, FLA.

Powersoft Corp. last week tried to shed its low-end image in the client/server development tool market by unveiling an arsenal of technologies expected in the next major release of PowerBuilder.

At the company's annual user conference here, Powersoft announced it will boost performance in PowerBuilder 5.0 by delivering compiler technology with the tool. It will also add a development repository and the ability to distribute objects in PowerBuilder applications.

A date for the 5.0 release was not given by the Concord, Mass.-based vendor, now a division of Sybase, Inc. But users said, based on Powersoft's product history, they expect it to be announced by next January.

Coming soon

The forthcoming Enterprise Object Library Engine will allow developers to store PowerBuilder objects in a relational database. Over time, the engine will be enhanced to offer full configuration management capabilities, said David Litwack, company president.

The distributed object feature will allow users to divide applications logic among different systems on a network. One benefit is that users can get away from problems surrounding the so-called "fat client," in which most of a client/server application resides on the desktop and hogs system resources. Users will also be able to locate compute-intensive algorithms and processes that many clients may want to share on a network server, Litwack said.



"We consider Microsoft and Oracle to be our primary corporate competitors. Our overwhelming strength is our understanding of our customers and the environment they're working in. But Microsoft has built a culture of disparaging the IS world and has a long way to go in understanding the real development environment at corporations."

— Powersoft Chief Executive Officer Mitchell Kertzman

Support for distributed objects will be key to making PowerBuilder an enterprise-class tool, said Mitch Kramer, an analyst at Patricia Seybold Group in Boston. "Right now, it's a client-side tool, not an enterprise tool, in that they can't do servers," he said. "Distributed objects will get them there, and what's nice is that it's an incremental step for users."

PowerBuilder user Craig Spencer, a systems integration specialist at Star-Kist Foods, Inc. in Newport, Ky., agreed that distributed objects are the right direction to take. But he said Powersoft was short on specifics about how it is going to deliver the technology.

Spencer also said he was glad to hear about the planned object library, which will add more robust storage capability than the current method of simply using the file system. "Ever since Version 1.0, I wondered why we couldn't just keep our [PowerBuilder Library files] in a database," he said.

The new compiler technology will stop short of generating stand-alone executable files, however, Litwack said. While the tool will generate C code as an intermediate step — and then compile this into machine code — the resulting files will require the PowerBuilder runtime environment to be executed.

Bevy of PowerBuilder companions

At last week's Powersoft Corp. user conference in Orlando, Fla., more than 40 companies rolled out an array of PowerBuilder companion products. Powersoft, a subsidiary of Sybase, Inc., also unveiled tools from newly acquired SDP, Inc., now called the Designor division.

With PowerBuilder user ranks now topping 100,000, a veritable mini-industry has cropped up around this client/server development platform.

"There are a lot of players who want to leverage the Powersoft success," said Chet Geschickter, an analyst at Hurwitz Consulting Group, Inc. in Newton, Mass.

The products introduced ranged from PowerBuilder utilities to client/server applications built with the development platform.

New from the Designor division was an entry-level database construction tool called StarDesignor for Windows, created to allow database administrators and applications developers to define the database structure of new applications and reverse-engineer existing databases. StarDesignor for Windows is scheduled to ship June 19 and will cost $649.

Some of last week's other launches — many of them hailing from small development firms — included the following:

- **SQA, Inc.** in Woburn, Mass., rolled out an upgraded suite of software testing tools. SQA Enterprise TestSuite for PowerBuilder is scheduled to ship within two months; pricing will be announced when it ships.
- **Tangent International** in New York released a middleware package called Distributed Computing Integrator that will link PowerBuilder code to transaction platforms including IBM's CICS, Novell, Inc.'s Tuxedo and AT&T Corp.'s Top End. The software, which sells for $1,295 per developer, is available now.

— Rosemary Cafasso and Elizabeth Heichler

ViewStar moves to NT, eases user transition to workflow

By Tim Ouellette

When Texas Commerce Bancshares re-engineered its loan processing system, the Houston bank's workflow vendor was with it every step of the way.

Anita Ward, senior vice president at Texas Commerce, said employees from Alameda, Calif.-based ViewStar Corp. sat in on the bank's re-engineering meetings and design sessions even before developing any ideas for technology.

"Now we feel as though we are image and workflow experts," Ward said. "We are much more confident in our ability to implement new technologies."

The ViewStar 4.0 software integrates modules for capturing, indexing, storing, routing and outputting documents and developing related applications. The firm's introduction last week of a complete line of object-oriented production workflow software for Microsoft Corp.'s Windows NT goes along with its push to educate users about workflow technology.

Production workflow software helps automate high-transaction information-based activities in the workplace, moving the work on to the next user. ViewStar's software architecture and new vertical application templates also help smooth the path for workflow users (see chart). "Our architecture takes advantage of the existing IS infrastructure," said Shirish Hardikar, vice president of marketing at ViewStar.

Analysts said ViewStar is the first workflow vendor to place its complete software line on Windows NT. This is an advantage because most competitors are only porting some of their Unix offerings to Windows NT, analysts said.

For example, workflow market leader FileNet Corp. in Costa Mesa, Calif., is porting some of its workflow software to Windows NT but not its complete line.

A view for NT

ViewStar announced that its entire line of workflow software will run on Microsoft's NT Windows Server. Other product information includes:

- Support for Windows and Windows NT clients
- Support for Microsoft's SQL Server, Oracle's Oracle7 and Sybase's System 10 relational databases
- Current ViewStar customers not yet using NT who want to migrate to the platform will receive packaged migration tools and support services at no charge
- Availability: August

For ViewStar, the move to Windows NT will let it support more robust, multitasking applications, said Ronni Marshak, an analyst at Patricia Seybold Group in Boston.

Many chief information officers consider the deployment of workflow and imaging systems key issues, said Scott McCready, an analyst at International Data Corp. in Framingham, Mass. These systems "are big enough in terms of impact to these companies to justify looking at new operating systems," he said.

The ViewStar difference

While the move to Windows NT signifies another application niche market that will take advantage of the operating system, analysts said they consider ViewStar's commitment to helping users who face new technology and a new operating system a key differentiator.

When 3M Co. in St. Paul, Minn., switched to Microsoft's SQL Server on Windows NT, "ViewStar provided really strong support for the move to the database and made sure their product worked," said Geri Freiberger, a senior analyst at 3M.

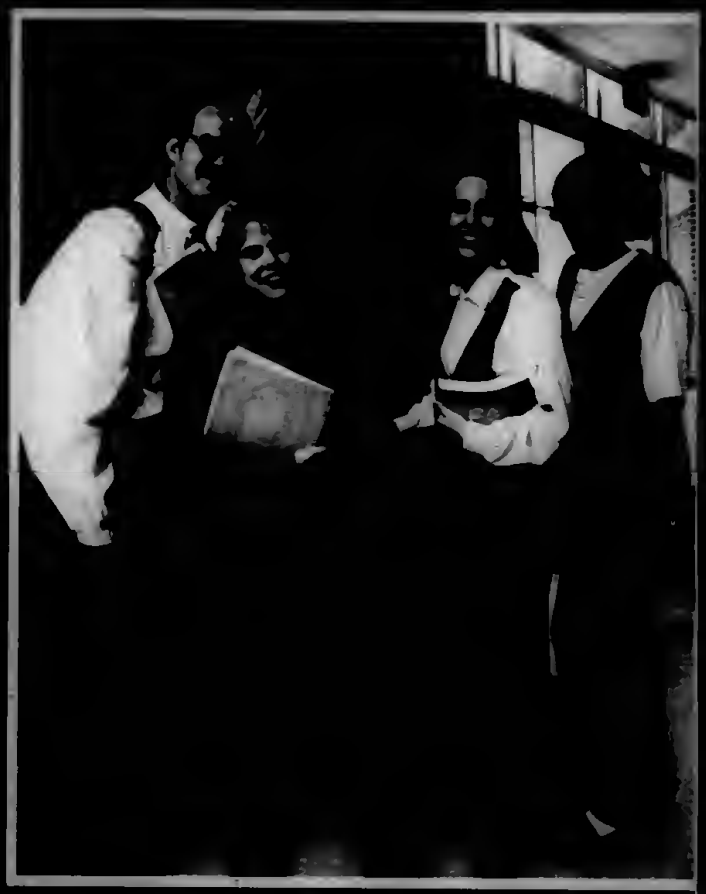
Frank Manci, a member of ViewStar's user group and document imaging coordinator at Colonial Savings in Fort Worth, Texas, said ViewStar has reacted sensibly to challenges from the likes of Watermark Software, Inc. in Burlington, Mass. He said he expects the company to make significant changes to its product packaging with the next software upgrade.

ViewStar founder David Ruiz said the company recently added to its education program to target platforms and development issues and address end users, applications developers and administrators.

FileNet provides assistance to its business partners in the early stages of development, and a company spokesman said it will also expand customer support soon.

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Ricarda Bartro
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Alamo Community College District
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"Hi, Jim. This is Lou Gerstner. Give me a call. I want to talk to you about buying Lotus."

"Hi, this is Lou Gerstner, CEO of IBM. I'm away from my desk, but leave a message, and I'll call you back. Beep-beep-beep."

"Hi, Lou. This is Jim Manzi. Glad you're interested in our products. We have a great distribution channel, and you can get them at all the computer retail stores. Tell 'em I sent you, and they'll give you a discount. Best to the family!"

Booooop! "Jim? Lou Gerstner. I don't think you understood me. I want to talk about an acquisition. You know, IBM and Lotus."

Beep-beep-beep. "Lou? It's Jim. Hey, I'm flattered, but the first quarter is a little slow, and we're kinda tight on cash right now. I don't think we could afford you. Thanks anyway."



Booooop! "Jim, it's Lou. No, no, no. We want to buy you. Really! Call me."

Beep-beep-beep. "Lou, it's Jim Manzi. Whoa! Take it easy now, big guy. I know we're a few months late on that rev of SmartSuite for OS/2, but we lost one of your install disks. We'll get to it next week, I promise."

Booooop! "Jim? Lou. Stop kiddin' around. I'm serious. We think you'd be a great strategic fit. We'll offer $2.5 billion for Lotus. Call me right away."

Beep-beep-beep. "Hi, Lou. It's Jim. Wow, $2.5 billion! I don't know about that. I gotta run it by the board. I'll call you tomorrow."

Booooop! "Jim, it's Lou Gerstner. What the hell is going on? You said you'd call right back, and that was six weeks ago. I want an answer now!"

Beep-beep-beep. "Lou? Jim Manzi. I feel like such a schluh! We've been redecorating the office and my assistant misplaced my call slips. Hey, listen, I did talk to the board, and they're flattered and all, but we're really not interested. Why don't you give Larry Ellison a call over at Oracle?"

Booooop! "Manzi! It's Gerstner. What's the big idea of changing your phone number? I've been going through hell trying to get you. I'm serious, Jim. We're buying Lotus whether you want us to or not. Call me!"

Beep-beep-beep. "Mr. Gerstner? This is Mr. Manzi's assistant. I'm calling to say he's got a cold, and the doctors have told him not to talk on the phone for at least a month. He'll call you when he's feeling better."

Booooop! "Jim, this is Bob Frankenberg over at Novell. Look, you've gotta stop hounding me about this. It is just not going to work. I've got enough problems of my own without buying yours. No, no, no."

Booooop! "Jim! It's Larry Ellison. Hey, I was delighted to get your phone mail. What a turnaround! I thought you guys would never agree to a buyout. I want to see you right away. Let's do lunch..."

Paul Gillin, *Editor*
internet: *pgillin@cw.com*



What was Lockheed Martin thinking?

I am appalled at the number of large companies planning to upgrade or convert their entire PC base to Windows 95. Lockheed Martin Missile and Space's proposal to dump its 9,100-plus Macintoshes in favor of Pentium PCs running Windows 95 ["Mac users fight Win 95 threat," CW, May 22] is a perfect example of this silliness.

Microsoft has stated it will support a single operating system by 1997 or 1998. Are they going to drop Windows NT? Hardly. They are more likely to incorporate a few Windows 95 features into a later release of NT, then drop Windows 95.

Why would anyone want to standardize on a product that is obsolete before it has even been released? And why would a company such as Lockheed Martin ignore the majority of its users, dispose of a huge investment in hardware and software and standardize on a product that will not be supported in two years? Any wholesale conversion to Windows 95 now will undoubtedly require another conversion in a couple of years. Managers should consider this when planning their Windows 95 upgrade budgets.

Bill Walker
Network systems engineer
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Lexington, Ky.
BWALKER@isource.mhs.compuserve.com

I want whatever they are smoking at Lockheed Martin Missile and Space. I can't believe that its management would be so irresponsible as to make a decision based on a beta copy of an operating system.

We have looked at Windows 95 but have deferred any policy or timing decision until a production copy is shipping. From what we've seen, there really isn't a burning need to rush out and upgrade everyone.

It would take a lot less effort for Lockheed Martin to upgrade and make its installed Macintoshes current.

Brian Dutro
Worthington, Ohio
Dutro@eworld.com

In defense of Cobol programmers

This letter is in regard to Paul Gillin's editorial, "Retrain, don't trash" [CW, May 22]. I just read a survey of some 70 software systems offered in my field — health care — and found that those systems were created with *at least 70* different languages and tools and on *at least 15* different operating environments.

Why are Cobol programmers singled out for retraining? Why not those who use high-tech client/server languages and systems such as Clipper, Clarion, Mumps, Nomad, Impromptu, PICK, Revelation, etc.? There continues to be a great deal of growth in Cobol, including the availability of object-oriented Cobol and graphical user interface front ends. There are untold decades of knowledge and experience available; we should be leveraging it.

John C. Schmidt
Director, clinical systems/networks
Hillcrest Healthcare System
Tulsa, Okla.

Thanks to Paul Gillin for his defense of mainframe programmers. Thank the Lord for enlightened leaders such as Gillin and Jim Woods, chief information officer at Hughes Aircraft. A pox on the unnamed CIOs Gillin cited who doubt the ability of Cobol programmers to retrain in new technology.

What these CIOs forget is that we are always shifting to new technology — assembler to Cobol, flat files to indexed files to database, DOS (mainframe) to OS/MFT to OS/VS2, IBM to Digital to Honeywell and back to IBM. If they have forgotten those transitions, perhaps it is time their employers hired new CIOs, people a little more in touch with the real world and the people who do the work.

Bruce Young
Oppenheimer Funds
Denver

■ Computerworld welcomes comments from its readers. Letters should not exceed 200 words and should be addressed to Bill Laberis, Editor in Chief, Computerworld, P.O. Box 9171, 375 Cochituate Road, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

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Are you ready for tomorrow?

Michael B. Cohn

Where are you when it comes to the future? Information technology is in turmoil. New technology has run amok. Each day we contend with client/server, object-oriented, sales force automation and chief financial officers who whine about downsizing and distributed computing.

To tell the truth, this new stuff gives me a headache. I like the way we were. How we've run our shops for the past 20 years is how we should run our shops for the next 20 years!

But you need to decide for yourself because the future is here today. Just take this simple test and choose the answer that best describes your shop. When it comes to the technofuture, where are you?

1. When it comes to your network:

a. You're building the network of tomorrow.

b. Your network of today is robust enough to be the network of tomorrow.

c. You send stuff across the network today and hope it shows up sometime tomorrow.

2. When it comes to desktop hardware:

a. You used to have dumb terminals but now use 486-based PCs (the Distributed Model).

b. You used to have 486 PCs but now use Pentium notebooks (the Mobile Model).

c. You used to have Pentium notebooks but now use dumb terminals (the Stolen Model).

3. When it comes to the information superhighway:

a. You don't envision using the Internet.

b. You have visions of thousands of authorized users accessing your system on the Internet.

c. You have discovered thousands of unauthorized users accessing your system through the Internet.



When it comes to the technofuture, where are you? Take this simple test and find out.

4. When it comes to replacing old technology:

a. Your mainframe will be out of gas within 12 months.

b. Your PCs will be obsolete within 12 months.

c. Your programmers have been obsolete for the past 12 months.

5. When it comes to data presentation:

a. Everyone criticizes your ugly CICS screens.

b. After being criticized so many times, you've developed a GUI front end.

c. After being chewed out so many times, you've developed a gooey back end.

6. When it comes to productivity:

a. Your staff works 7 by 3 (7 days a week, 3 shifts a day).

b. Your staff works 7 by 3 (the work of 7 is done by a team of 3).

c. Your staff works 7 by 3 (they come in at 7:00 and, by God, they're leaving at 3:00).

7. When it comes to client/server:

a. You won't migrate until there are hundreds of mature products from multiple vendors.

b. You're ready to migrate because there are hundreds of mature products from multiple vendors.

c. You're sorry you migrated because it took hundreds of mature products from multiple vendors.

8. When it comes to satisfied users:

a. Your users are making lots of noise about getting quicker PCs.

b. Your users are making lots of noise about getting a faster network.

c. Your users are making lots of noise about getting a swifter CIO.

Cohn hopes he even has a future at a large computer company in Atlanta

A capital idea

Paul Strassmann

It is fashionable nowadays to talk about the "information economy." According to pundits, the U.S. has already made the transition from an "industrial" to an "information" age. No wonder information technology managers aspire to be in the vanguard of the new era.

If information is indeed the wave of the future, would it not be proper for the experts on managing information to take over as the leaders of the yet unexplored pilgrimage by seizing control over capital investment in computers?

Whether information technology professionals are destined for positions of leadership or just to remain expert specialists is a matter of much conjecture.



If information is the wave of the future, maybe the experts on managing it should take over.

Those who see the CIO as an innovative corporate strategist assert that information management is the critical capital investment for the survival of any enterprise. Those who observe that information technology expenditures account for only about 1.5% of industrial firms' revenue would say computers are not important and will become less so as their cost declines.

Any debate about the relative importance of any phenomenon is pointless unless one can measure it. In the industrial age, the control of capital was supreme. The accepted measure of corporate performance was the efficiency of using capital.

For the past 15 years, I have collected data that separated the cost of coordination — information management cost — from the cost of delivering goods and services. By adding the expenses of sales and research and development as reported in published financial statements, you can calculate a company's ratio of information management to capital cost.

The 1993 information-to-capital ratios for 548 industrial firms and 219 financial services firms offer new insights. For 86.3% of the industrial firms, the cost of information exceeded the cost of capital. That number was 73.1% for the financial services firms that everybody assumes are capital-intensive.

It just happens that the information technology budgets for 164 of the industrial corporations are known. Information technology accounted for slightly less than 10% of total expenses for information management. The cost of information technology capital (in the form of equipment depreciation and rental payments) was only about 2% of the total cost of managing information.

These findings have implications on the practice of information management:

- The last thing one should do is evaluate the effectiveness of information management on the basis of return on capital. The annual cost of information technology assets is only about 1/50th of total information cost.
- Executives cannot hope to rely on managing the cost of information by applying tight capital budgeting methods to computer investments. Government agencies' overwhelming emphasis on controlling the acquisition of computers to handle cost of information resources is not only irrelevant but also leads to bizarre procurement practices.
- Computer managers should resist the compulsion to minimize the capital cost of computing equipment as the key to effective information management. The time has come to examine information technology as the essence of most businesses instead of as just a machine tool.

Strassmann was a CIO for 35 years. He is a consultant in New Canaan, Conn., and author of *The Business Value of Computers* and *The Politics of Information Management*


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Exploring - Windows

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Simplified User Interface

Windows 95 makes navigating the system easier for every user. There are fewer concepts to learn, a more consistent, more intuitive layout and improved, unified, on-line help. Users find answers to their questions without having to call you. With long file name support, users can find files more easily. The Start button offers a single, streamlined point of access for nearly everything they want to do. A taskbar is always visible so switching applications is a snap.

For a Closer Look

Look no further than WinNews. It's the on-line, electronic newsletter that updates you with the very latest information on everything you need to know about making the move to Windows 95. To subscribe e-mail us at enews9@microsoft.nwnet.com with only the words **Subscribe WinNews** in the text of your message.

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WHERE DO YOU WANT TO GO TODAY?

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IS must consider users

It seems appropriate to respond to John Goedert's letter to the editor ["Looking out for best interests," CW, May 8] concerning the recent "Best-of-breed apps vs. suites soundoff" [CW, April 24] and provide another viewpoint.

Why should a user settle for a second-rate application that doesn't do the job just because it's easier for IS to support a suite from one vendor? Most suites have one very good application on which the suite vendor's reputation was built and several mediocre ones. Why should a payroll manager care if the suite has a really good general ledger application if the payroll application can't properly tax an employee who works in two states?

IS needs to remember who the customer is (the user) and that the customer is always right.

Richard M. Skibski
Cyborg Systems, Inc.
Chicago

OS/2 coverage lacking

I am disappointed with your coverage of OS/2. The majority of articles seem to present OS/2 only from the standpoint of being on its last leg or from a frustrated user's point of view.

In addition, it is through other sources that I find out about new developments for OS/2. Computer Associates, Corel and Lotus all have exciting applications heading OS/2's way.

OS/2 Warp is a tremendous operating system and is fun to use, and I would like to know more about development for it as well as success stories of those who use it.

Michael F. Czap
Arlington, Texas

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Internet needs global law, order

Entrepreneurs are considering establishing gambling outfits on the Internet. By locating their operations in countries such as Belize where gambling is legal, they expect to circumvent local [antigambling] laws. This development is an indication of the soon-to-be-here anarchistic and lawless world of the Internet. What's to stop an entrepreneur from offering child pornography or personal information about consumer buying habits from another country that hasn't yet outlawed such behavior?

The trend this portends can undermine orderly and lawful societies. As a result of these activities, money will flow from highly regulated to less-regulated countries. Some countries will weaken their laws to permit or even encourage such activities. As a result, one can expect a devolution of world information-related standards, laws, ethics and morals.

The U.S. government's efforts to establish rules for the information highway are misdirected. To stop the spiral toward anarchy and chaos, we need generally accepted worldwide information laws. The United Nations or some other organization with worldwide influence should promptly get involved.

Charles Cresson Wood
Sausalito, Calif.
3143490@mcimail.com

Legal limits

When a law enforcement official cites "society's right to make sure that we can get to the content" of communicated and stored data, he errs, as do those who confuse effort with results ["Taking a byte out of computer crime," CW, May 22].

Laws that try to obscure this truth have wisely been rejected in the U.S. Yet such proposals continue to be made even though they're sure to be both futile and destructive to historic liberties. Can we not demand a sense of limits from our protectors against crime?

Myles K. Losch
Los Angeles

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(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep
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Networking Products ☐Yes ☐No

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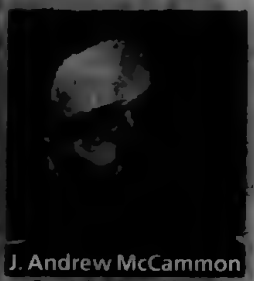
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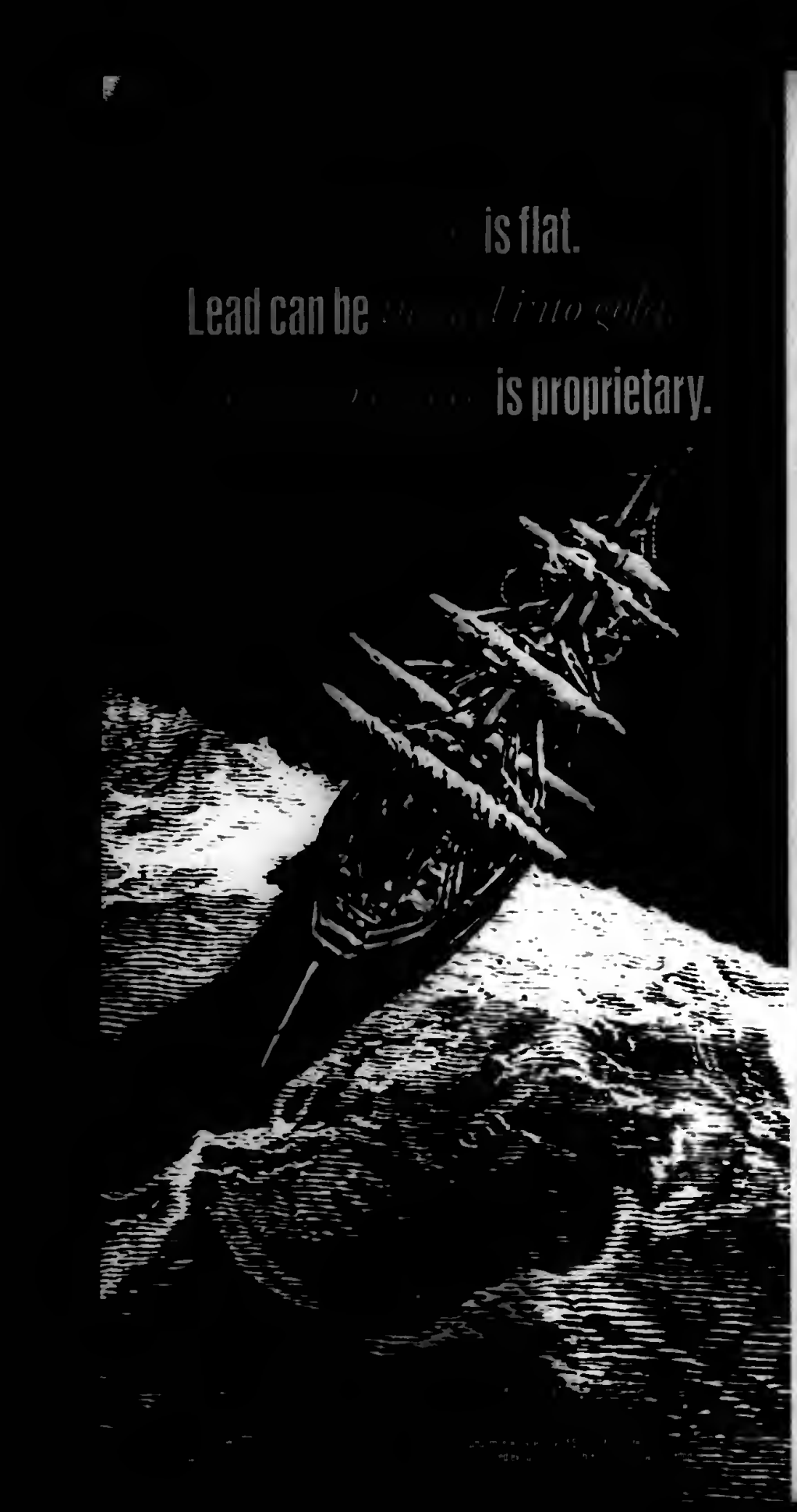
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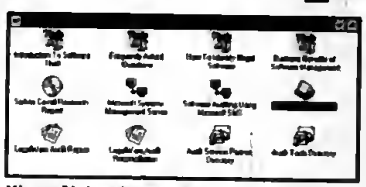
Software licensing

Microsoft pilot helps firms pinpoint piracy

By Stuart J. Johnston

Corporate users in the UK have a new way to assure they are using fully licensed software thanks to a Microsoft Corp. pilot program now under way.

If the program proves successful, Microsoft will likely roll out its free LegalWare package to customers in the U.S. and other countries, said Mark Roberts, software theft program manager at Microsoft UK.



Microsoft's LegalWare: *Disks and workbooks provide a guide to copyright law*

LegalWare was designed to help users audit the software they have, compare that with how much software they have purchased and keep track of other information connected to support costs.

It is comprised of disks and workbooks that provide a comprehensive guide to copyright law, the penalties for breaking the law and a large spreadsheet that helps users assemble the necessary information.

Penalties and hidden costs

Sandra Sellers, director of litigation for the Software Publishers Association, an industry group in Washington, said the software industry lost more than $8 billion in revenue worldwide last year through piracy and other forms of unlicensed software use.

Yet Sellers emphasized the benefits for companies that audit themselves rather than the penalties they might invoke through unlicensed use.

Auditing lets companies know the program versions users have so uniform upgrades can be performed when new versions come out. Monitoring use also enables managers to evaluate whether one licensing option makes more sense than another, Sellers said.

"There are definite benefits of an economic nature [for user companies] as well as productivity" advantages, she added.

For example, a concurrent usage license may be more economical than buying everyone in a division a copy of the program if not all workers need to run the program at the same time.

A study commissioned by Microsoft UK showed that "of those companies that view themselves as honest, less than 23% ever did an audit and, of those, only 7% ever matched [the results] against purchase records or licenses," Roberts said.

The LegalWare package is not an automated software product such as Microsoft's promised licensing server. Rather, it provides a method of auditing software licenses and a way to raise corporate users' consciousness of the perils of using unlicensed software.

Those perils include hidden costs such as providing support and training for software that information systems managers are not aware users have and are using.

Other hidden costs include lost productivity and hardware requirements for running software that IS does not know is in use. That can be a significant drain on a company's resources, said Rob Enderle, senior industry analyst at Dataquest, Inc. in San Jose, Calif.

"There are a lot of good reasons [why IS managers] want to know what people are using, plus if people are just bringing stuff in, they might be bringing in viruses," Enderle said.

A moral issue

"I think programs like this that are designed to focus on this issue are constructive," said Greg Scott, information services manager in the college of business at Oregon State University in Corvallis. Scott said his own situation is simplified by the fact that all of the PCs he manages are on a network, and all licensed software is loaded from servers with metering software that tracks license compliance.

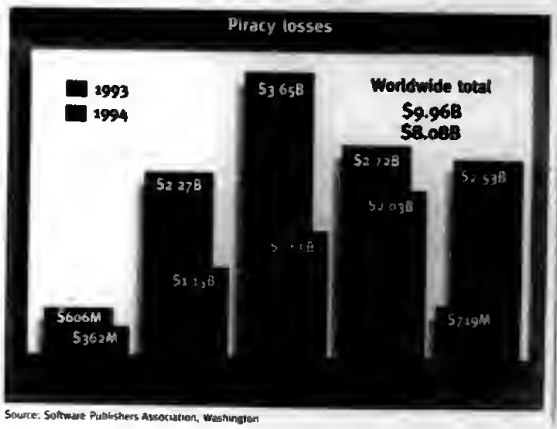
Still, he sees software licensing as a larger issue.

"Certainly, it's a legal issue but, ultimately, we have to look ourselves in the mirror in the morning, so it's also an ethical and moral issue," Scott said.

Ron Condon of the IDG News Service's London bureau contributed to this report.

Big bucks

The Software Publishers Association projects that 25% of software used in the U.S. last year was not legally licensed, but that figure is down from 40% in 1993. Piracy losses in the U.S. last year were pegged at $1.05 billion.



Source: Software Publishers Association, Washington



Cost-conscious producers *are now beginning to turn to high-end PCs for some of their digital animation needs*

Making movie magic

Digital, SGI vie for Hollywood gold

By Neal Weinberg

In the land of Hollywood special effects, the Silicon Graphics, Inc. workstation is the undisputed Tyrannosaurus rex.

SGI workstations have been used to develop animation sequences in *Jurassic Park* and countless other movies. Plus, SGI recently signed a deal with Dreamworks, the Steven Spielberg/Jeffrey Katzenberg/David Geffen entertainment company, to establish a $50 million digital animation studio. SGI said it expects to boost its $300 million in annual revenue from the entertainment industry to $1 billion by the end of the decade.

More bang

But cost-conscious producers are now turning to high-end PCs for some of their digital animation needs, according to Walter Miao, vice president of technology at Link Resources, Inc. in New York.

Digital Equipment Corp. is trying to position its Pentium-based PCs as the Velociraptors of video — smaller, more agile and less expensive to feed but just as fearsome.

Digital scored its first major win recently when Sony Pictures Imageworks in Culver City, Calif., used Digital PCs to produce a four-minute cyberspace scene for the film *Johnny Mnemonic*.

Digital is betting that a combination of increased viewer demand for dazzling special effects, plus the need to cut production costs, will lead to more reliance on PCs.

Miao said the availability of prepackaged software now allows movie studios to bring some digital animation work in-house, taking business away from outside powerhouses such as Industrial Light & Magic in San Rafael, Calif.

With a 70-second scene in *The Mask* costing an estimated $250,000, Miao said studios are looking to trim animation costs wherever possible.

Frank Foster, vice president of multimedia at Sony Pictures Imageworks, said the 3-year-old company has been using SGI workstations for most of its heavy-duty digital animation but has also established a PC unit "with the goal of providing cost-effective alternatives for directors and filmmakers working with us."

Using AutoCAD software from Autodesk, Inc., Foster first used Digital PCs for preproduction work, then moved to title design for films such as *Speed*, *Rudy* and *Guarding Tess*.

The breakthrough was with *Johnny Mnemonic*, Foster said. For the first time, Sony Pictures Imageworks produced full-frame, 35mm visual effects entirely on Digital PCs.

"We surprised a lot of people," Foster said, including the director of the film, who had assumed the key cyberspace sequence in the movie, featuring Keanu Reeves,

Movie magic, *page 50*

Martin A. Goetz

Copycats or criminals?



A U.S. Court of Appeals recently gave a major victory to small software companies by declaring in *Lotus vs. Borland* that the copyright system does not protect a "method of operation." It is now up to the U.S. Supreme Court to bring this issue to much-needed closure.

For years, the software industry has been plagued with the issue of the "look and feel" of software. Conflicting court decisions have muddied the water. When building or improving software products, what latitude does a company have in its design? Can a company improve its products by incorporating "new" features that exist in competing products? Must every software product have its own unique "look and feel"? Can a software product's external language and screen organization be protected under current U.S. laws? Can a company legally build and market a clone — a product externally identical to another product?

Since 1987, I have been publicly debating this issue and writing articles denouncing Lotus for suing Borland and Paperback Software for alleged copyright infringement. My position has been that Lotus was attempting to apply copyright law when, in fact, the issue was one of patent law. And because Lotus never attempted to protect any inventive "method of operation" that might have been at issue in its 1-2-3 design, it twisted the copyright law to achieve its goal.

First volley

Lotus' first suit, in 1986, was against Paperback, a small company that had built a spreadsheet that was 100%-compatible with 1-2-3. Paperback had built a clone of 1-2-3. Paperback did not reverse-engineer and did not have access to 1-2-3 source code. Paperback had its own design but wanted the same look and feel and functionality. Paperback lost that suit and did not appeal. The company was bankrupt by the end of the trial.

Lotus then went on to sue Borland, which had incorporated several 1-2-3 features in Quattro Pro, making it easier for people who had been trained on Lotus to use Borland's spreadsheet. Borland also lost at the district court level, but an appeals court overturned that decision.

Both of these small companies, in Lotus' eyes, committed the "crime" of delivering products the market wanted. Nevertheless, these suits didn't scare off large companies such as Microsoft, which has incorporated features of Lotus and Apple products into its own Excel spreadsheet and Windows 95 products. Now IBM has announced a clone of Microsoft's Visual Basic.

A comparison of Microsoft's extensions to Excel and Windows 95 and the Borland and Paperback modifications to their products is revealing.

One news report on Microsoft's Version 5.0 of its Excel spreadsheet called it "a mix of catch-up features designed to match innovations from its competitors." Excel 5.0 places notebook-style tabs at the bottom of each spreadsheet, a feature created by Borland to better identify spreadsheets and navigate among them. From 1-2-3, Microsoft borrowed in-cell editing.

Another example involves Microsoft's forthcoming Windows 95 operating system. One news article compared Microsoft's new operating system to Apple's Macintosh operating system, saying Windows 95 will offer "many features that Macintosh users have taken for granted for years." That article described many similar features of the systems and claimed a Microsoft official readily admitted that Microsoft constructed features of Windows 95 from the Macintosh operating system.

> Apparently, Microsoft blesses the concept of copying selected features from a competitor's product. And unless you're copying a patented feature, many lawyers would agree, it is perfectly legal.

Apparently, Microsoft blesses the concept of copying selected features from a competitor's product. And unless you're copying a patented feature, many lawyers would agree, it is perfectly legal.

Small companies, big burden

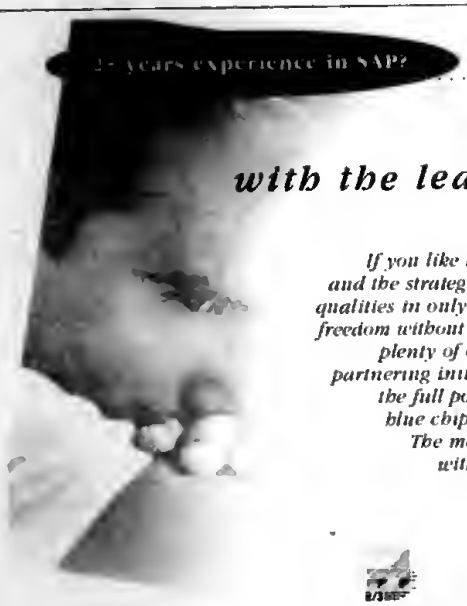
Is what Borland did any different than what Microsoft is doing with Excel 5.0 or Windows 95? One would have thought that after the Paperback decision, a company would not build a clone of a competitor's product. However, large companies such as IBM, Microsoft and Lotus do not appear to be constrained by the uncertainty of today's copyright laws. Unfortunately, small companies are.

Copyright laws were never intended to reduce competition. Incorporation of compatible features and clones is good for the industry. It increases healthy competition. And the price of software is only one factor in a purchasing decision.

Just as important to buyers are efficiency, speed, reliability, extensibility, service and interoperability. With clones, user companies that do not wish to change their spreadsheet languages or go through staff retraining are not compelled to stick with a single vendor that holds a monopoly on the external language by virtue of its copyright.

It is hoped that the Supreme Court will review *Lotus vs. Borland*, and the uncertainty as to the scope of copyright protection for computer programs will finally be resolved.

Goetz, founder of the former Applied Data Research, is now president of Goetz Associates in Teaneck, N.J.



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IBM's bundling bonanza

OEM deals to strengthen OS/2 presence

By Lisa Picarille

Facing stiff competition from Microsoft Corp.'s Windows and the impending release of Windows 95, IBM is peddling OS/2 to computer makers around the world. It hopes overseas OEM preloading deals will spur the adoption of OS/2 by U.S.-based corporations that do business internationally.

IBM also hopes that an increased demand for OS/2 will help it eventually loosen Microsoft's lock on the lucrative U.S. OEM market.

Only last December did IBM PC Co. decide to preload OS/2 on all of its systems with 8M bytes of memory or more.

"That was the big one. The first one to move. Now, it's just like the floodgates have opened," said John Soyring, division director of strategic relations at IBM's Personal Systems Products division in Austin, Texas. Soyring noted that users are much more likely to use the operating system that comes with the computer than buy and install another one.

After that long overdue vote of support, IBM decided to seek support from computer makers in Europe and Germany, where Big Blue has a big presence, he said.

Thus far, IBM has lined up Vobis Microcomputer AG, one of Germany's largest computer makers, and Escom GMbH. Soyring said 15 other German manufacturers are expected to follow suit and that IBM "estimates that by the end of 1995, OS/2 will be preloaded on 60% of the PCs sold in Germany." Currently just 10% of the PCs sold in Germany are preloaded with OS/2.

A wide open window
1994 installed user base

	OS/2	Windows
U.S.	1.9M	32M
Western Europe	3.1M	23M
Japan	0.4M	5.8M
Rest of the world	0.5M	21.5M
Total	5.9M	82.3M

Source: International Data Corp., Framingham, Mass.

Some industry watchers said that while OS/2 is definitely gaining momentum outside the U.S., the 60% target in Germany may be unrealistically high. David Card, an analyst at International Data Corp. in Mountain View, Calif., said OS/2's recent success outside the U.S. is impressive and may translate into increased sales in the U.S. if multinational corporations pressure their U.S. offices to standardize on OS/2.

Still, other computer makers outside the U.S. have already signed up to preload OS/2 on their systems. Not all of those agreements are exclusive, however, which means these OEMs can load operating systems from rival developers as well.

IBM recently signed up Osborne, Australia's largest manufacturer. NEC Corp. in Japan will be loading a modified version of OS/2 Warp on all its machines starting this month, and the Legend Computer Group Corp. in China will also preloaded systems with OS/2, Soyring said.

Now IBM is focused on signing up North American OEMs. Toshiba America Information Systems, Inc. announced in March that it will load OS/2 on specific models of its high-end line of color laptops. In February, Compaq Computer Corp. started shipping Warp with all of its servers. Dell Computer Corp. and Unisys Corp. have announced intentions to preload OS/2 as an option.

Multiprocessing

AT&T GIS kicks off high-end server line

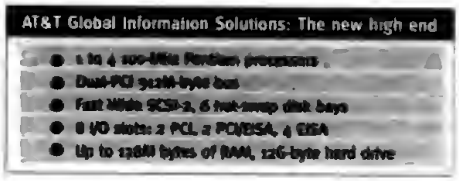
By Jaikumar Vijayan

■ AT&T Global Information Solutions will unveil Globalyst PC servers featuring telephony and communications tools at the PC Expo show in New York next week.

The products will include the S40, a top-of-the-line, four-CPU symmetrical multiprocessing server based on Intel Corp.'s 100-MHz Pentium chip. The company will also announce the S10, a uniprocessor server based on a variety of Pentium processors.

The servers support Peripheral Component Interconnect technology and will feature many of the communications functions the company now offers on its business desktop lines, according to Mike Flanary, director of product management at AT&T GIS.

For instance, the servers will come standard with AT&T GIS's Vistium Share software, which allows users to collaborate, share applications and modify and transfer files across the LAN.


AT&T Global Information Solutions: The new high end
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The servers will also feature telephony services that will eventually allow users to remotely dial in to their servers and retrieve messages and electronic mail.

"There [is] a whole shelf of applications waiting out there until more effective communications [technology] becomes available," said Jim Garden, an analyst at WorkGroup Technologies, Inc. in Hampton, N.H.

All in the family

By positioning its servers as communications-heavy boxes capable of handling communications-intensive applications, AT&T GIS is leveraging the background of its parent organization, analysts said.

"It ties with their ability to offer communications-oriented products" in the server space, Garden said.

The quad-processor S40 server is being positioned for the LAN consolidation and application server markets, while the S10 is headed for the print and file-sharing markets, Flanary said.

The new servers will also come with integrated server management services for Unix, Microsoft Corp.'s Windows NT and Novell, Inc.'s NetWare. For instance, the servers will come standard with Assessit, a Windows-based asset management tool. The servers also feature Network Central, a file management system from First Floor, Inc. that gives users a graphical representation of network resources.

The systems also feature a Server Availability Manager for NT, which comes free with every Globalyst server. The package automatically switches an application to a backup server in a Windows NT environment and is capable of remotely monitoring networked systems and issuing system alerts.

"Systems [like these] are clearly pushing the performance envelope of PC servers. They are using the power of Intel chips to chip away at the Unix server market," Garden said.

Prices start at $9,175 for a single-processor S40 PC Server with 32M bytes of error checking and correcting RAM, a 1G-byte hard drive, an Ethernet adapter, a quad-speed CD-ROM and management software. The systems will ship in July.

Briefs

HP checks in at wireless hospital

Hewlett-Packard Co. in Palo Alto, Calif., last week introduced PalmVue, a wireless system designed to help physicians keep tabs on the vital signs of critical-care patients. PalmVue integrates HP patient monitors, the HP 200LX palmtop computer and existing paging technology. A standard system, including dispatch station with modem, five 200LXs preloaded with PalmVue OmniCare critical-care application software, an HP LaserJet 4L printer, training and installation, is available now for less than $25,000.

AutoCAD ports to Alpha/NT platforms

Autodesk, Inc. is porting AutoCAD Release 13 software to Digital Equipment Corp.'s Alpha workstations running Microsoft Corp.'s Windows NT. "It does open up a mass market for Digital's Alpha-based NT platforms," said Gisela Wilson, an analyst at International Data Corp. AutoCAD on Alpha/NT would appeal to midrange users of computer-aided design software, according to Wilson.

Integral rolls out disk drives

Integral Peripherals in Boulder, Colo., recently announced new 720M- and 1G-byte 2½-in. disk drives for high-end notebook computers. The drives were designed to suit the growing storage capacity needs of today's mobile computer users. OEM single-quantity evaluation units are available now at $595 for the Platinum/720 and $795 for the Platinum/1010.

Software, systems firms merge

Workflow software vendor Recognition International, Inc. and Bantec, Inc., a maker of financial transaction processing systems, have agreed to merge in a $180 million stock swap. Both companies are based in Dallas, and the combined company will employ more than 4,000 people.

Workstation has the SPARC

RDI Computer Corp. last week announced a new portable workstation compatible with Sun Microsystems, Inc.'s SPARCstation 5. The PowerLite 110 is based on a 110-MHz microSPARC II RISC chip and has 128M bytes of memory and up to 2.4G bytes of hard-disk storage. The unit will ship on June 1, priced from $12,995. It will support both the older SunOS and the new Solaris 2.4 Unix operating systems.

AT&T licenses smart card technology

AT&T Corp. said it would broadly license its smart card technology. In use now by Delta Airlines, Inc.'s Shuttle service, among other companies, AT&T's licensing effort is a bid to spur "cashless" commercial activities.

Movie magic

CONTINUED FROM PAGE 43

was being done on SGI hardware.

Foster said SGI workstations still play a major role in the company's activities, but now he approaches projects from "a multiplatform perspective."

SGI still on top

Sony Pictures Imageworks has a substantial investment in the SGI systems and quite a bit of customized software code written to SGI machines. And the high-end effects, which Foster calls photo-realism, are "still the domain of Silicon Graphics."

Big screen

Sony Pictures Imageworks has done special effects for *Speed*, *Wolf*, *In the Line of Fire*, *Last Action Hero* and *The Pelican Brief*.

But, he adds, "In the next few years, we will see PCs make strides into that arena."

Foster currently has 50 PCs and said he is constantly adding machines. This fall, when the necessary software has been ported to Digital's Alpha machines, Foster said he will take advantage of Digital's 64-bit capabilities.

He did not have hard numbers, but Foster estimated that using PCs translates into providing the producer with twice as much screen time for the same cost.

SGI isn't sitting still, either. The company recently purchased software makers Alias Research, Inc. and Wavefront Technologies and is now offering customers hardware, software and services, Miao said.

Prices to slide in chip avalanche

By Jaikumar Vijayan

A torrent of announcements from chip vendors promises to give users a veritable flood of choices in the third quarter and dramatically lower systems prices as well. As a result, a full-featured, 100-MHz-Pentium multimedia system will be available for less than $2,000 by year's end, according to analysts.

More chips, more choices

Company	Chip	Speed	Market	Availability
Intel	Pentium	133-MHz	Servers/desktops	Now
Cyrix	M1SC	100-MHz	Notebooks/desktops	Q3
AMD	Am486	120-MHz	Portables/desktops	Q3
PowerPC alliance	PowerPC 604	120/133-MHz	Servers/power desktops	Now
NEC	VR 4400	250-MHz	SMP servers/power servers	Q3
TI	486DX2	80-MHz	Low-cost desktops	Q3

Among those slated to announce chips this week are Intel Corp. and the PowerPC partners — IBM and Motorola, Inc. — which are expected to come out with faster versions of their existing processor families.

Meanwhile, last week, Advanced Micro Devices, Inc., Cyrix Corp., Texas Instruments, Inc. and NEC Electronics, Inc. unveiled additions to their product lines.

For users, the slew of announcements is once again expected to result in lower systems prices, especially in the crucial fourth quarter when computer sales peak as a result of the holiday season, according to Tony Massimini, an analyst at In-Stat Research, Inc. in Scottsdale, Ariz.

Analysts say they expect mainstream Pentium prices will fall steeply as the new chips from Cyrix and AMD begin to compete with Intel's hot-selling 75-MHz Pentium chip.

The most significant announcement from the current crop is expected to be that of the M1SC Pentium-class chip from Cyrix, according to analysts.

The 100-MHz chip, which was demonstrated at last week's Computex trade show in Taiwan, is a sort of mutated Pentium-type chip. It offers almost the same kind of performance as a 75-MHz Pentium but comes in a standard 486 package, according to analysts.

Tiny tweaks

The M1SC has a 64-bit internal architecture but a 486-like 32-bit external interface. This means systems designers and vendors can integrate a Pentium-class chip into a standard 486 motherboard with very few tweaks. Currently, 486-class motherboards have to be redesigned from the ground up to accommodate the Pentium chip.

The ability of the M1SC to be easily integrated into current-generation motherboards and its aggressive sub-$150 price make the chip particularly attractive for the portable market, said Dean McCarron, an analyst at Mercury Research, Inc. in Scottsdale, Ariz.

Meanwhile, chip giant Intel is set once again to increase the speed of its Pentium chips. This week, the Santa Clara, Calif.-based company will announce the 133-MHz Pentium chip — the fastest in its Pentium family. This is the third chip announcement by the company this year, and once again, it extends the range of processors in the Pentium line.

Intel is aiming the chip mainly at servers, though like other chips before it, the 133-MHz chip is ultimately expected to find its way into PCs and even notebooks. More than 50 vendors, including most major ones, have already endorsed it, and systems are expected out later this month.

Continuing to squeeze the still-lucrative 486 market, meanwhile, are AMD and TI, both of which last week announced 486 clones but aimed them at different market segments. AMD's newest 120-MHz 486 is the company's fastest processor in that class and is expected to head for the low-cost portable and desktop markets. TI said it is positioning its 80-MHz chip for price-sensitive overseas markets and certain embedded applications.

The PowerPC alliance will this week announce new versions of the PowerPC 604 processor. The new chips will operate at 120- and 133-MHz speeds and will have an estimated performance ranging from 180 to 200SPECint — a benchmark measuring integer performance.

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[redacted]

Open Systems, Inc. has introduced Traverse, business accouating software for Windows.

According to the Eden Prairie, Minn., company, Traverse is customizable accounting software that features general ledger, accounts payable, accouats receivable and a systems manager. It also iacludes table-driven multicurrency features and international functionality.

Traverse is built on Microsoft Corp.'s Access and integrates with Microsoft's Office.

Pricing for Traverse starts at $1,200 per module.

▶ *Open Systems*
(612) 829-0011

Bananas Software, Inc. has introduced Image'n'Bits 2.0, imaging software for Windows 3.1 based on Microsoft Corp.'s OLE 2.0 technology.

According to the Paramus, N.J., company, Image'n'Bits 2.0 converts images from file formats on disk, screen captures and scanned images into editable OLE objects that can be dropped into Windows applications. Image'n'Bits lets users embed or link an image file into other applications for editing without exiting the applicatioa.

Image'n'Bits 2.0 supports more than 30 file formats, including BMP, GIF, JPEG, JFIF, JTIF, Kodak Photo CD, TGA, TIFF, PCF and WMF.

Image processing functions in Image'n'Bits 2.0 include flip, mirror, convert to negative, false color substitutinn, smooth, blur, sharpen, pixelize, posterize and emboss.

Image'n'Bits 2.0 costs $79.

▶ *Bananas Software*
(201) 265-9855

Symbios Logic and **Scriptel Corp.** have announced WriteTouch, a cordless, electrostatic digital pen product.

According to the Colorado Springs and Columbus, Ohio, companies, WriteTouch lets manufacturers add pen and touch input capabilities to portable systems. WriteTouch consists of a seasor panel, a stylus cartridge, a controller and software drives. It was designed to be integrated into notebooks, vertical market pen tablets, personal digital assistants and desktops.

Pricing for WriteTouch starts at $3,000 per unit.

▶ *Symbios Logic*
(719) 596-5795
▶ *Scriptel*
(614) 276-8402

Innovative Data Design, Inc. has released WinDraft, a design and drafting program for Windows.

According to the Concord, Calif., company, WinDraft helps users create drawings, floor plans, landscape designs and flowcharts. It provides a scaled drafting environment and drawing tools, including lines, circles, rectangles, arcs, polygons, ellipses, Bezier curves and freehand shapes. Design professioaals can configure their own tools.

WinDraft also creates multilayered scaled drawings and can resize, group, rotate, flip and distribute objects along a liae. It includes a architectural library and symbol files.

WinDraft costs $50.

▶ *Innovative Data Design*
(510) 680-6818

Product short

Cirque Corp. has announced GlidePoint Desktop and GlidePoint Desktop for Macintosh. GlidePoint is a stationary pointing device that translates finger movement across a touch surface into cursor movement on a desktop screen and takes up less desk space than a mouse or trackball. Cost: $89 for GlidePoint Desktop, $99 for the Macintosh version. Cirque, Salt Lake City (801) 467-1100.

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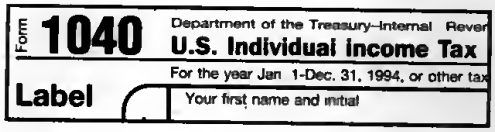
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Wireless LANs complement existing corporate networks

Wireless technology growth slow, but analysts predict a bright future

By Mindy Blodgett

When wireless LANs burst onto the scene in 1990, they were heralded as a way to completely eliminate cable and wired connections.

It has not quite happened that way. Instead, the growth of wireless LANs has been slow and is concentrated predominantly in vertical markets, including retail, health care and warehouses.

Wireless LANs work the way wired LANs do: They connect PCs, servers, workstations and a network operating system. Wireless adapters and access points create networks without cabling.

"Wireless is a niche market," said Craig Mathias, an analyst at Farpoint Group, Inc. in Ashland, Mass. "It is not going to take over wire, but it absolutely has a bright future."

The most common technology enabling wireless LANs is spread-spectrum radio bands. But infrared and microwave technologies also support wireless network connections that allow users to share files, data and programs.

Hand in hand

Few users see wireless LANs as the sole corporate network. Usually, a wireless LAN is an extension of the wired LAN.

For Don Smith, computer systems manager at the Canadian Parks Service in Alberta, Canada, installing a wireless bridge has easily linked a remote administration building to the central computer. The service uses a spread-spectrum product from Aironet Wireless Communications, Inc. in Fairlawn, Ohio.

Smith said that before going wireless, the PCs at Jasper National Park were linked by a dedicated multiplex line. All server traffic was on a VAX-based system via a multiplex line.

This system was, according to Smith, "very unreliable and slow."

Rather than undertake the daunting and costly job of laying new cables in the wilderness for another dedicated line, Smith decided to try a wireless bridge.

Installation of the new system a little more than a year ago cost $15,000 and roughly $11,000 for hardware, Smith said. Because the system uses radio technology, there are no licensing fees, he said, and the 1.33M bit/sec. wireless link "is considerably faster" than the old system.

Two types of wireless LAN solutions dominate the market: fixed, which link stationary PCs and desktops; and roaming, which support handheld devices and portable PCs.

Warehouses or factories — where concrete floors make connecting computers difficult — have been using the fixed type of wireless LANs.



Closer Look
Wireless LANs

Battling it out

There are two camps within radio technology. DSM uses a wider bandwidth, which spreads the signal. FH allows the data signal to "hop" from channel to channel. These two methods are incompatible, so users must choose one or the other. So far, DSM leads the market, but FH products, which can operate on a lower-powered battery and can be cheaper to implement, has gained some ground.

According to Stephen Franco, an analyst at The Yankee Group in Boston, roaming office users, who value mobility, have seen the relatively high cost of wireless LANs as a deterrent.

But that should change in the near future, Franco said.

"The productivity possibilities are what will bring roaming users into wireless," Franco said. "With the virtual office and virtual corporations, it just doesn't make sense to rewire."

There has also been a battle between the competing technologies, with radio dominating, according to Franco.

Microwave, which is faster than spread spectrum and can penetrate walls, has failed to catch on, analysts said. The relative bulkiness of the products needed to use microwave and the requirement that users be licensed for bandwidth use has made it unattractive.

Infrared, a technology also capable of great speeds, uses laser infrared transmitters and supports two types of devices: dispersed and line of sight. This technology has also been relegated to a niche role, according to Franco, because of the high cost of lasers and health concerns about laser use.

As a result, spread-spectrum radio transmission technology has moved into a dominant position in the market. There is no need to obtain licenses for radio transmissions, and it is much less expensive to implement, Franco said.

It is likely, he added, that in the coming years the two spread-spectrum technologies — direct sequence modulation (DSM) and frequency hopping (FH) — will be supported by products, the way Ethernet and Token Ring have been in the wired world.

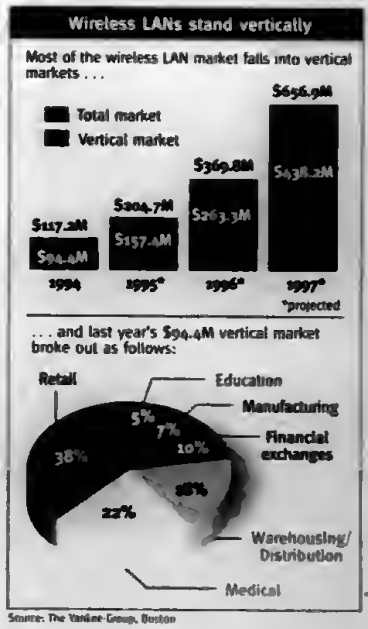
But for wireless LANs to grow, especially in the coveted horizontal markets, several obstacles must be removed, according to Virginia Brooks, an analyst at Aberdeen Group, Inc. in Boston.

"What people are looking for is more speed, ease of use and reliability," Brooks said. "The products have to be there, and costs for wireless LANs have to fall. The connectivity products addressing those issues must be produced. My sense is that when that happens, people will start to look to wireless as an extension, but never as a replacement."

One of the stumbling blocks to wireless LANs is the lack of standards for products. The Institute of Electrical and Electronics Engineers 802.11 Committee has been trying to define standards allowing wireless LANs to interface with wired LAN technologies. But even if the committee is able to reach an agreement, products are not likely to be ready for another couple of years.

What is really needed, observers said, is a change in thinking.

"How many times have you been in a meeting and said, 'I'll E-mail you later,' and then you don't," Mathias said. "If you had the wireless capability in a conference room, you could easily get at those figures. Once people have these capabilities and you see how it will help productivity, you won't be able to pry people away from it."



Source: The Yankee Group, Boston

Users have a few choices when it comes to wireless LAN technology, but they have to take the good with the bad

Technology	Advantage	Disadvantage
Spread-spectrum, UHF	• Market acceptance of technology • Can penetrate walls • Wide range (up to 800-foot radius) • Unlicensed spectrum • Components usually less expensive • Perceived as safe	• Lower frequency makes it slow • Possible interference from other devices operating in the same radio frequency
Microwave	• Faster than spread spectrum • Can penetrate walls • Usually no interference because it is licensed bandwidth	• Expensive to develop • Machines tend to be bulky • Frequency licensing likely to be inconvenient to users who wish to move the LAN outside of the area in which it is licensed
Infrared	• Fast and can be transmitted far • LED-based devices can be cost-competitive with spread-spectrum devices	• Cannot penetrate walls • Possible interference because of line-of-sight characteristics • Laser infrared transmitters – although capable of 100M bit/sec. and distances of two miles or more – are expensive for commercial LAN implementations within a building

Source: The Yankee Group, Boston

Users hope Sun's Hot Java peps up data

By Jean S. Bozman
SAN FRANCISCO

Sun Microsystems, Inc.'s heady brew of its Hot Java Internet browser [CW, May 15] is having a ripple effect among Sun users thinking about the practical uses of Sun's Internet authoring and security technology.

In the weeks since Sun's May 23 Internet announcement, many users have said they intend to download the free Hot Java browser software from Sun's home page. But firms authoring Internet home pages will have to adopt it before Hot Java's animated icons become widespread on the World-Wide Web, users said. And some are unsure how soon Sun's internet building blocks [see box at right], including its secure Internet servers, will deliver electronic commerce for large information systems enterprises.



Duke, *Sun's animated mascot for Hot Java, pops up during a game of Hangman, among other places*

Getting attention

Users expect Hot Java's animation capabilities to add life to static data. Users can browse Web home pages, and the Hot Java software will download animated applications written in the Java object-oriented language. Stock tickers, video clips of baseball games and colorful travel maps can all be programmed in Java.

"We're interested because Sun has made a good effort to make [Hot Java] a standard," said Matt Fahrner, network manager at Burlington Coat Factory Warehouse, Inc., which has more than 400 Sun machines nationwide. "We like the idea of multimedia extensions. They would be very useful to us on our home page."

Netscape Communications Corp. has licensed the Java programming language for inclusion in future Netscape browsers, Sun said.

Security substitute

But Fahrner said he believes Sun's SunScreen security server products, priced from $50,000 each, are too costly. He said standard $7,700 Sun SPARCstation 5 workstations, $5,000-plus Sun Netra servers, Sun's Firewall-1 software and a standard network router can do much to secure an Internet site. Firewall-1 is priced between $5,000 and $18,000.

However, some early users have already put Java and Sun's Netra servers to work. StarWave, Inc., a developer of Internet content and services in Seattle, has already built one Java application that updates sports scores while games are in progress. The application will be available to end users this summer.

Other users are enthusiastic about the promise of doing electronic commerce on the Internet using Sun technology. But, some say they will need to see more Internet infrastructure in place to guarantee reliable services before they launch into electronic commerce themselves.

"This technology has to get to the level where it is an appliance," said one Chicago network manager, who requested anonymity. "The vision that this is plug and play is erroneous. They're selling you the back-end servers, but there [have] to be people in the middle who make all this work, such as service providers to help IS."

Victor Wheatman, research director at Gartner Group, Inc.'s electronic commerce strategies service in Santa Clara, Calif., agrees the Internet is not as stable as traditional T1 or T3 leased data lines. But Sun has suggested that IS managers can pair SunScreen Internet servers to provide secure Internet links that tie two corporate offices together [CW, May 22]. Sun's encryption software was designed to scramble network signals so hackers cannot decipher them.

Sun's idea of bundling security and user-friendly software with Internet servers should pay off, said Michael Goulde, a senior consultant at Patricia Seybold Group in Boston. "It's a start at giving them a solid position in one of the highest potential growth areas in the industry," he said.

Sun's Internet product lineup

- Hot Java browsers and Java object-oriented programming language, which is similar to C++. The browsers and the language are free for noncommercial users; negotiated license fee for Internet server and data services providers. The Hot Java browser is available on Microsoft Corp.'s Windows NT now and will ship for Microsoft's Windows 95 and Apple Computer, Inc.'s MacOS by July.
- Netra I 2.0 servers, priced from $5,800 to $16,000, depending on configuration, will be available by July. Netra servers are based on existing SPARCserver 4, 5 and 20 systems.
- SunScreen SPF-100 security server and bundled software, priced from $50,000. Available in limited quantities, with volume shipments in September and restrictions on its sales outside the U.S. Sun is also aiming for wide acceptance for its security software by submitting its SKIP (Simple Key Management for Internet Protocol) security specifications to the Internet Engineering Task Force.

Printer standards add up to better management for users

By Patrick Dryden

Administering and using diverse printers throughout distributed network environments should get easier this year, but there is a catch.

To make it happen for users, vendors must follow through and implement recently completed management standards. Some have already demonstrated prototypes of models due out this fall.

"Vendors will always differentiate themselves by adding certain features we need, but it would really be beneficial to have a common format for the software supporting the printers," said Fred Siegmund, senior technical specialist for output systems at Chevron Information Technology Co. in San Francisco.

"It's difficult now to support all the different printer management tools," he said.

Developers of printers, connection devices and systems software for networks have agreed on common objects for printers. These objects are essentially definitions of commands and status information that can provide a consistent approach to dealing with printers beyond the desktop or local workgroup.

Vendors such as Hewlett-Packard Co., Lexmark International, Inc. and Xerox Corp., for example, have made great strides in simplifying network printing for users and managers through their software. But these printers require specific programs, which increase complexity in enterprise networks that already support multiple vendors' models. Also, some of these tools may work only in one network environment.

And while other aspects of using and managing networks have improved, printers remain a problem, said Jerry Wetherington, systems coordinator for the University of Florida at the northeast regional data center in Gainesville.

"Printing is done differently in each environment and by each vendor," Wetherington said. "Whenever users try to print, they first have to figure out which network they are on and what capabilities are available. We have to maintain all of that information ourselves since there's no common repository."

Finally, though, vendors have some tools to provide consistent information about print services after reaching milestones on two fronts.

Front No. 1 is the Internet Engineering Task Force, which has approved a standard Management Information Base (MIB) file for printers. This MIB, located in printers and print servers, will be able to exchange status information with client and administrator programs across networks via the Simple Network Management Protocol.

On Front No. 2, the Desktop Management Task Force (DMTF) in March completed a complementary standard. That Management Information Format (MIF) file works in a similar way with systems utilizing the Desktop Management Interface (DMI). DMTF backers implementing this interface include Intel Corp., Microsoft Corp. and Novell, Inc.

Making it better

"Printing is a basic network service. These standards should help make printers more virtual devices available to everyone, not limited to particular workgroups," said Frank Dzubeck, president of Communications Network Architects, Inc., a Washington consultancy.

Users will be able to poll the network for printers that can provide the speed, resolution and paper-handling capabilities needed for their output. And they will receive consistent feedback and status information. Administrators will be able to remotely manage all compliant printers in a consistent manner.

Enabling bidirectional communication with printers was a big step toward manageability, Siegmund said, but many units currently installed throughout Chevron's networks cannot make this next step to MIB or MIF support without modification.

Standardized printer management

Vendors have defined nearly 200 commands and status information objects for printers. Two network access methods will enable consistent monitoring and interaction across networks.

Common printer objects

Status: read/busy, queue, location
Alerts: out of paper, paper jam, cover open
Capabilities: emulation, resolution, speed
Paper handling: paper size, two-side printing

Network access methods

Management Information Base file: approved by Internet Engineering Task Force for access by programs using the Simple Network Management Protocol

Management Information Format file: approved by Desktop Management Task Force for access by programs using the Desktop Management Interface

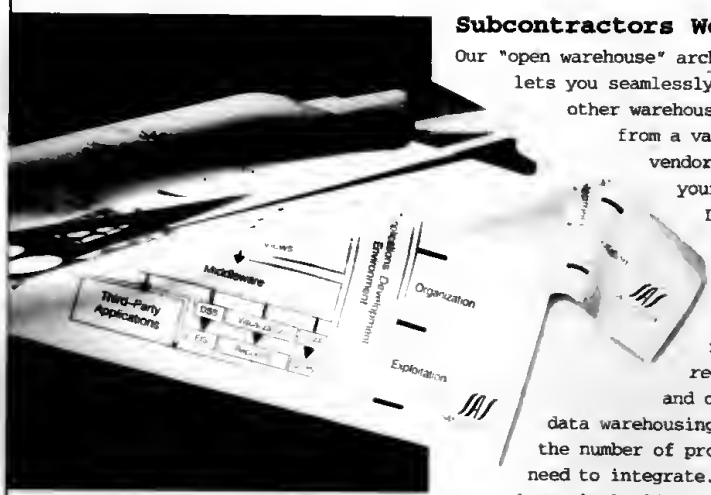
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A Milestone in Client/Server Computing

When we look back over the events now unfolding in computing, 1995 will be remembered as the year when the twin disciplines of systems management and network management rose to new prominence.

That they should do so is not surprising, given their inherent importance, but what gives us pause is how quickly they became requirements in the new paradigm of client/server.

By any measure, client/server is being adopted with astonishing speed. A recent poll by Sentry Market Research shows that 65% of North American sites surveyed are deploying client/server systems. Moreover, 70% say that, long term, client/server will be the primary computing model for their companies.

That pace of adoption has caused many heads to jerk backwards. The skeptics joke that client/server computing is like teenage sex — everyone talks about it but few are actually doing it. Don't for a moment believe such silliness. Client/server computing is real, it's happening and it's moving very quickly.

Systems and network management have become hot buttons with the realization that evolving client/server environments — increasingly complex client/server environments — demand sophisticated administration and management. The last thing the industry needs is to shift from islands of automation, which we did a superb job of creating over the past 10 years, to continents of computing, and their associated applications, databases and other software going haywire.

Systems and network management are established disciplines in the mainframe computing environment. Practitioners in that world long ago solved many of the problems now occurring in client/server. This year, consumers of information technology took a page out of computing's past and applied it to the problems of the present. In so doing, they chose order over chaos.

But it would be a mistake to think that the way systems and network management were conducted is also the way they should be conducted in client/server. While the functions remain constant, their application will require a different approach.

This White Paper is dedicated to thinking anew about these time-honored disciplines.

Watch for the rest of the Enterprise Software Directions Series:

The Business Case for Client/Server	September
Service Solutions for Client/Server	December

This White Paper was produced under the direction of David R. Brousell, director of Sentry Market Research. Founded in 1985, SMR specializes in demand-side information technology research on multiplatform, open software environments in client/server, application development, network management and systems management markets. SMR is a division of Sentry Publishing Co., Westborough, Mass.

This White Paper was researched by Paul Korzeniowski of Malden, Mass., and written by Larry Marion of Triangle Publishing Services Co., Newton, Mass. Illustrations are by Christopher Bing.

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Wanted: A Single Point of Control

The IS director for a major bank was stumped. According to his surveys and operating data, the bank's network of automated teller machines had higher than 98% uptime. But the polls taken by the consumer marketing department consistently showed much lower ratings.

After meeting with the retail banking department and attending several focus groups, the IS director realized the problem: There were two definitions of uptime, and for customers, the traditional IS meaning didn't count. To customers, uptime meant that they were able to get money from an ATM via a cash advance from their credit card or get an instant loan approval. To them, the status of the ATM and the network were the means to an end, not the end itself.

Not until the IS department cobbled together network and systems interfaces that broadened the array of financial choices available to consumers did customer ratings of ATM network uptime move closely match the scores from the IS surveys. Today, the bank uses systems and network management "to achieve strategic aims, like improving customer service," says the now enlightened IS manager.

In many industries, computer systems and the networks that connect them are almost indistinguishable. Most corporations are now completely dependent on networked computers. While mainframes or other types of hosts remain the heart of most companies, worldwide webs of processors have become the central nervous systems, carrying an organization's critical business functions.

"The integration of all of our systems relies heavily on networks that are in place today," says Glen Holloway, LAN services manager for Regency Systems Solutions, the IS unit of the Hyatt hotel chain. "We would stop doing business if they failed." Network reliability is critical to Regency, which, notes Holloway, relies on networks for "virtually everything," including checking in and checking out, transactions, and sales and marketing.

So prevalent are LANs today that many customers now consider the network as the company. "For many companies, their identity has become the person or system at the end of an 800 number," says Martin Clague, general manager of IBM's worldwide client/server computing unit. And once that happens, he notes, "technical risks become business risks."

> We would stop doing business if [our networks] failed.
>
> *Glen Holloway, LAN services manager*

But technical risks can sometimes be business advantages. When properly implemented, "systems management enhances the ability to do business by providing an auditable base for flexible and effective business processes," says Clague. "Changes to the system can be integrated more simply, with a positive impact on both risks and costs."

Classic systems management tasks, such as performance monitoring, applications distribution, version control and configuration management, take on strategic importance in client/server environments. Given the shrinking time-to-market windows for most companies, delays in deploying applications mean lost business. And in an era of conflicting trends — corporations increasing their reliance on networks to deliver service globally while at the same

time reducing LAN support staffs — weak systems management can have worldwide repercussions.

"Distributed computing has automated more people, more tasks and many more parts of commercial enterprises," says William A. Gannon, Jr., vice president of Sentry Market Research, a leader in demand-side research in the IT industry. "At the same time, greater empowerment has resulted in greater dependency on IT and, hence, greater risk. For businesses to truly engage in the commerce of information, they must control their IT resources in a way that allows for greater coordination and minimal risk."

But the obstacles can be formidable. For companies to maximize their leverage of IT resources, they must change their traditional fragmented approach to managing systems, networks, applications and databases. "If a user experiences a problem, he does not care if the network, the application or the operating system causes it," notes Barbara Sannerud, a director of market research firm Gartner Group Inc. "He just wants it fixed."

The management of systems, networks, applications and databases is nothing like it was 20 years ago. Today it is converging into resource management, especially in organizations that use the client/server model of distributed computing. "In a mainframe environment, you knew who was responsible for systems management and who was responsible for network management," says Vincent Cafarelli, director of information systems at Converse Inc., North Reading, Mass. "But when you're operating a WAN, systems management and network management blend into a gray area."

The shift to converged resource management is dictated by both practical and strategic reasons. For an organization that depends on disparate management systems, pinpointing the cause and solution of a resource failure can be an exercise in frustration. "People want an integrated solution, so the line between systems and the network is disappearing," says Sanjay Kumar, president of Computer Associates International.

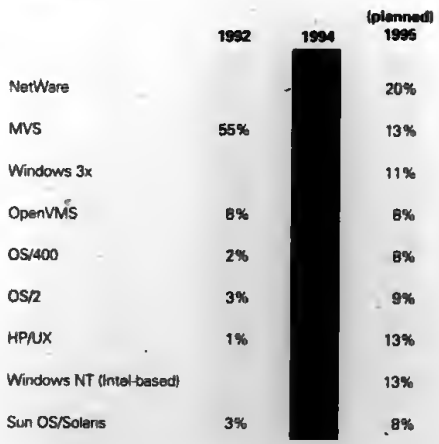
For many companies, the goal now is total resource management from one console. "Companies now have 20 different tools to pinpoint a problem," says Gordon MacKinney, OpenView program manager at Hewlett-Packard. "Instead, they need one tool that has access to many types of information, that quickly identifies a problem and presents it in a consistent manner."

Convergence is also being driven by the need for cost efficiency. "The biggest driver of the convergence of systems and network management is the pressure to reduce costs and improve productivity," says Lynn Wilczak, director of systems management investments, plans and controls at the network software division of IBM.

Some companies want to reduce costs and improve productivity in areas that go beyond traditional data processing functions. For instance, McDonald's Corp. wants "one system that will be able to

NetWare: the Preferred Control Point

NetWare is maintaining its status as the control point for systems management, but Unix and NT are moving into the fast lane, according to an SMR survey of more than 250 systems management professionals.



Source: Sentry Market Research, Enterprise Systems Management Report

Figure 2

Does Your Productivity Measure Up?

The immaturity of most distributed client/server computing architectures leads to widely divergent network management productivity levels. The database includes more than 100 organizations reporting data through early 1995.

Metric	Minimum	Average	Best Practice
No. of End User Devices* supported per net staff member	320		1,400
No. of end user devices attached per net supervisor	1,100		4,800
Percentage of calls resolved by help desk	66		97
Mean time to repair (worst case in hours)	2.9		1.2
No. of end user devices connnected per help desk call	52		320

Source: Compass America

control our computers, PBXs and long distance lines," says Michael Disabato, manager of strategy development.

Attaining resource management nirvana may not be possible for several years. In fact, some companies have abandoned any hope of finding a resource management system that can seamlessly tie together disparate hardware, software and networking platforms.

Three years ago, United Parcel Service issued an RFP for one system that would tie its systems together. "One year into the project, we realized that it probably was not going to happen," says Marc Dodge, telecommunications systems manager. UPS looked at every management system on the market, but, recalls Dodge, "did not find one that came close to meeting our needs."

According to Dodge, the biggest problem is that current systems are too narrowly focused to address what were UPS' most pressing concerns: PCs and LANs. "They are geared to big iron mainframes and Unix systems," he notes.

Inherent limitations

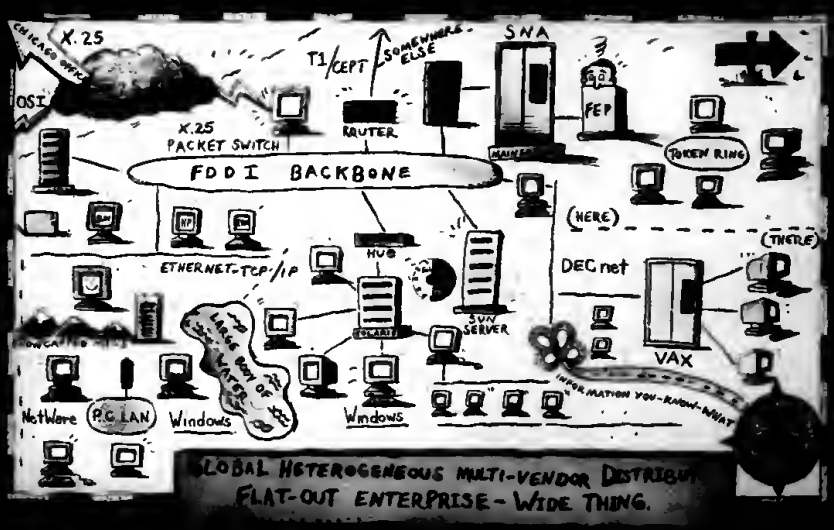
Eventually, a new generation of products will offer the requisite level of integration. However, no single tool or toolset will encompass the full breadth of management functions needed to support strategic systems. Vendors such as HP and IBM will offer a "manager of managers" approach — a platform or foundation that will accommodate other products.

"No one tool can do everything," says Gevenie Delsol, director of global network services at Levi Strauss & Co. "There's a need for specialized tools, as long as there's compliance with a standard protocol, so we can feed information from one tool to another."

In the meantime, both vendors and resource managers are under pressure to deliver the platforms and interoperable tools. Although network growth continues to soar, competitive pressures preclude the unabated growth of resource management staff. Vendors realize that they have to deliver a new generation of tools based on open systems standards using intelligent agents and built with object technology. These technologies are required if business is to automate mundane resource management functions such as backup and restore and fault prevention.

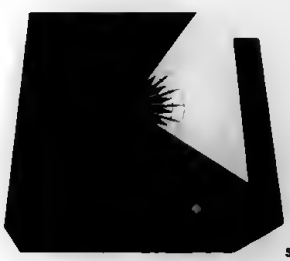
"In the client/server world, four out of every five dollars are spent on administration and management," contends William Warner Jr., vice president for enterprise management at IBM. "When customers got into client/server, they thought they were buying cheap computing, but the difference in cost between host-based systems and client/server architectures is closing to almost nothing."

The reason, according to Warner, is the higher cost of administering LANs, PCs, workstations and servers. As a result, he says, "the name of the game is to provide tools and services to attack and reduce those management costs." ■



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SLSTIB

New Links in the Value Chain

Three years ago, Kmart Corp. stunned its top suppliers with a chilling change in strategy. The discounter, under pressure from rivals such as Wal-Mart, wanted to dramatically shrink its warehouse and distribution center structure. No more buildings overflowing with inventory – Kmart wanted each of its 300 largest suppliers to adopt a just-in-time retailing approach. If they didn't, they would face a crushing loss of revenue from one of their biggest customers. Kmart hoped that automatic replenishment of empty store shelves would reduce its costs dramatically.

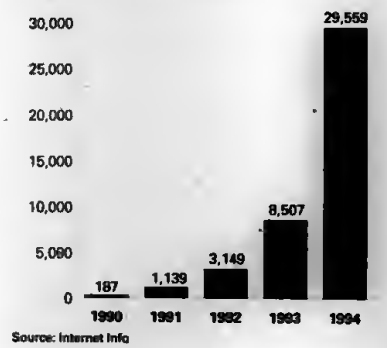
For Jeffrey Gora, senior replenishment planner at Johnson & Johnson's consumer products unit, Kmart's ultimatum was a spur to action. J&J had been streamlining its order management process since 1991, but the mainframe-based system under development could not do what Kmart wanted. After trying a PC spreadsheet as a Band-Aid solution, J&J bought into the commercial technology of the 1990s: supply- or value-chain management systems.

To improve their top and bottom lines, many companies are building a new business model based on the internetworking of computer systems. They are using real-time, database-driven software and WAN links to replace fax messages, mag tapes, phone calls and all the other inefficient, multilayered and manual processes usually employed by trading partners to enhance commerce. The solution is particularly attractive to PC makers, retailers, banks and auto makers, all of which are hard-pressed to cut costs and improve their time to market. "The name of the game these days is horizontal integration across suppliers and customers," says Kenneth Thompson, senior vice president of Manugistics Inc., a leading supplier in the nascent supply-chain software market.

The pieces of the supply chain management puzzle have been in place for decades, but no one could coordinate them. General Motors' mid-1970s push to compel its key suppliers to use electronic data interchange (EDI) to improve efficiency was the opening salvo in the war against paper-based delays. In the 1980s, industries on the leading edge of technology, such as aviation and finance, developed private information-swapping networks to improve the efficiency of the back end of the process: exchanging orders, netting out balances and resolving any

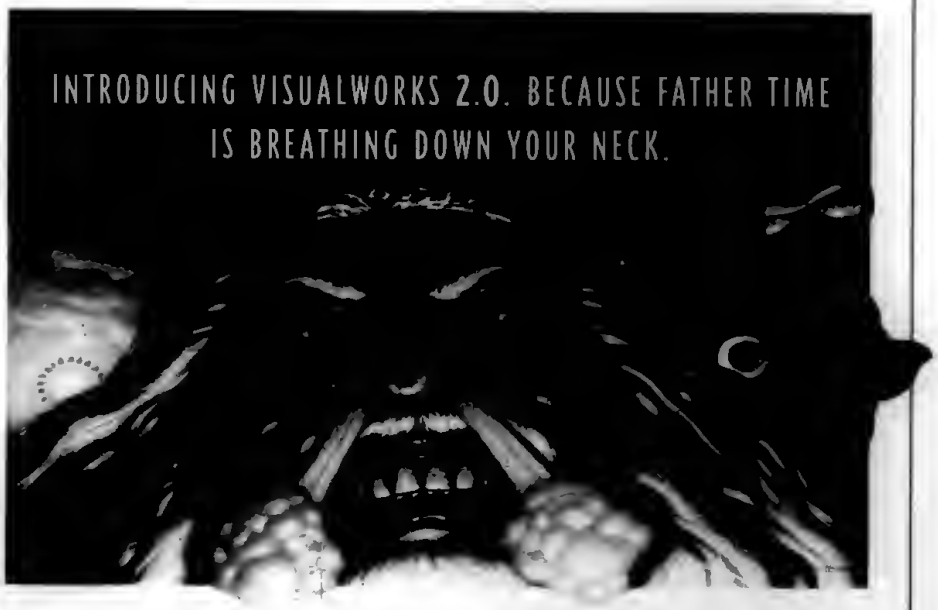
Business Computers Proliferate On The 'Net

Companies have been joining the Internet at the rate of 12% per month, according to Michael Welsh, president of Internet Info, a market research and consulting firm in Falls Church, Va. Of the roughly 30,000 U.S. companies that have registered, about 25% have sales in excess of $500,000, he estimates.



Source: Internet Info

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discrepancies.

Supply chain management links trading partners from beginning to end of their business process: product design, marketing, ordering, delivery, payment and reordering. The trickle of companies going beyond EDI to adopt this new paradigm is about to swell to a flood. The growth of commercial domains on the Internet is laying the foundation for a surge of electronic commerce, once security and payment issues are resolved. As a result, systems and network managers have a new hurdle to leap.

"Inter-enterprise connections are the next big challenge for IS," notes James Herman, vice president of Northeast Consulting Resources, a Boston consulting firm specializing in networking issues. "More and more companies need to connect their outsourcers, subcontractors and customers in a tight linkage with the internal organization. That type of value-chain integration, or cross-organization business process re-engineering, is hard to do. On my list of difficult IT challenges, inter-enterprise connections rank right up there at the top."

Most network and systems managers charged with establishing supply-chain linkages are sweating bullets over interoperability and productivity issues. "The shift to cross-enterprise, supply chain management puts a tremendous burden on systems and network management," says Thompson of Mannigistics.

Their biggest headache, though, is security. "The security of information in America has gone down dramatically due to the externalization of corporate information," says Steve Harmon, vice president of marketing for Tivoli Systems.

For the network and systems managers who have been ordered to open access to the corporate jewels — a company's databases and applications — paranoia may be a virtue. "True electronic commerce, not just EDI, is causing a significant impact on how they manage the front door of business," says John Kril, national service leader for IT strategy and architecture at accounting and consulting firm KPMG. "It requires an acute awareness of the liabilities in your technology if there is unauthorized access. It takes the access problems of WANs and LANs and puts them in the uncontrolled public arena. This puts telecom managers in a precarious position, and I'm not sure if many of them realize the scope of the exposure and risk."

Some EDI pioneers are already aware of not only the risks, but also the effort required to reduce their vulnerability. The automotive systems group of Johnson Controls uses the Internet, an industry-specific private network and direct linkages to exchange data on car seat design, production and delivery with key customers. "The priority is the security of data," says Andrew Drummond, LAN systems manager. "We want to make sure that each customer's information, such as product drawings, will be confidential and secure, so Ford doesn't see Chrysler."

According to Drummond, securing data is a long, tedious process involving a series of what-if challenges. "We invest weeks of security-related work for each customer that we add to the network. And we have to repeat the process for the next customer."

The Do's and Don'ts of Electronic Commerce

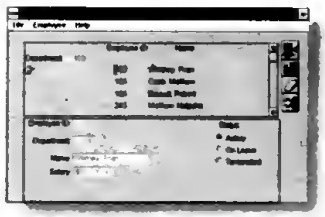
Establishing a virtual enterprise between trading partners, subcontractors and other entities is a major headache for network and systems managers. Here's some advice from a few of the pioneers:

- **A firewall between the Internet and internal systems isn't enough**
- **Don't reinvent the wheel – consult network providers**
- **Mainframe-like access control systems are not as robust in client/server environments**
- **Install a monitoring package to track who's reading what**
- **Internetwork security is an ongoing challenge**
- **Standard protocols aren't enough**
- **Lower the expectations of users**
- **Configure WANs and LANs for extensive remote access demands**

DEVELOPER PRODUCTIVITY COMPARISON

Sybase

PowerBuilder 4.0



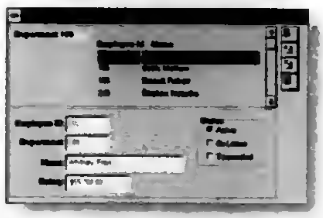
52 lines of code

```
Application Open
SQLCA.DBMS=ProfileString("PB.INI","Data
base","DBMS","")
SQLCA.DbParm=ProfileString("PB.INI","Da
tabase","DbParm","")
open(w_employees)
Application.Close
DISCONNECT using SQLCA;
IF SQLCA.SQLCODE <> 0 THEN
  ROLLBACK using SQLCA;
  MessageBox("Disconnect",SQLCA.SQLER-
RTEXT)
END IF
MasterWindow.Open
CONNECT using SQLCA;
IF SQLCA.SQLCODE <> 0 THEN
  MessageBox("Connect
Error",SQLCA.SQLERRTEXT)
  HALT
END IF
dw_master.settransobject ( sqlca )
dw_detail.settransobject ( sqlca )
IF dw_master.Retrieve() = -1 THEN
  ROLLBACK using SQLCA;
  MessageBox("Retrieve","Retrieve Failed")
```

** Taken directly from "PowerBuilder Getting Started
© 1991-1994 By Powersoft Corporation

Oracle

Developer/2000



4 lines of code

```
exit_form;
create_record;
delete_record;
commit_form;
```

It's amazing how many lines of code you'll find behind the exact same application.

These two programs do exactly the same thing create a Windows application that retrieves and updates employee information stored on a database server. The 52 line PowerBuilder application was taken directly from the PowerBuilder manual. Oracle's new Developer/2000™ implements the identical application in just 4 lines of code. If you want to experience the productivity benefits of second generation client/server tools call 1-800-633-1071, Ext. 8168.

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The solutions usually adopted by IS managers facing externalization demands — standard access control software, a firewall and a third-party network provider — aren't enough. They must also upgrade systems management tools. "A firewall is not the proverbial magic bullet," says Kril, who advises IS managers to take a hard look at the supporting infrastructure to provide alerts and information delivery of what is happening in a computing environment. "My clients think they're safe with a firewall, but that's like putting a screen door in front of your house door. How do you know what they've done if they get inside?"

The second challenge for systems and network managers in the midst of a value chain implementation is the flip-side of security: insuring interoperability of systems among partners. "Tools to enable the virtual enterprise aren't there yet," contends Geverie Delsol, director global network services, Levi Strauss & Co. "Even if everyone is using a standard protocol like TCP/IP, the implementations are not always completely interoperable."

Levi Strauss has found that each supplier or customer link requires systems and network managers to knit together a labor-intensive custom solution. "You have to understand the client's environment," notes Delsol. "It seems like it consumes all of our time, trying to get the same vocabulary and baseline of understanding with our partners."

When it comes to technology, aggressive adopters have an easier time linking to their business partners than do their more conservative competitors. Regency Systems Solutions, the Hyatt hotels unit responsible for its systems and for selling technology, has been a pioneer in moving from host-based processing to open systems for mission-critical applications. Creating linkages with other hotel chains, as well as the rest of the travel industry — airlines, car rental firms, tour operators — is a challenge, but Regency claims its earlier distributed processing efforts are paying dividends.

"We seem to be able to implement new interfaces more quickly than other hotel companies, especially if they are still based on legacy systems," claims Victor Vesnaver, assistant vice president for sales. He adds that an interface project that may take one of his competitors up to a year may take Regency only several months . . . or even weeks.

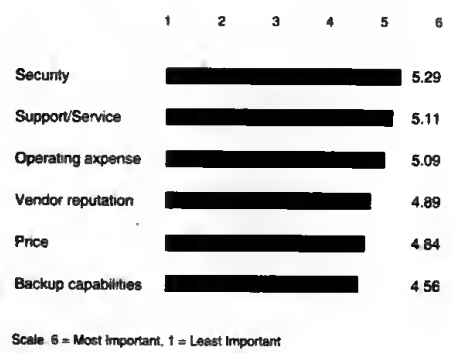
For value chain players who move fast, the rewards can be significant. Manufacturers report inventory reductions of 20% to 50%. Easy reservation access had led to a 20% to 25% increase in revenues for Regency, while the electronic linkages offset far more costly telephone reservation operations. Overall, IS officials say payback periods of less than a year are typical. Some IS managers report that the financial gains are so apparent and immediate that they don't even bother calculating the ROI.

Arco Alaska and its Prudhoe Bay partner, British Petroleum, recently erected a shared Ethernet segment in Anchorage to exchange oil well production and operations data. Mark Armentrout, IT manager for Arco Alaska, did not even do a cost justification analysis on the project, saying, "Decisions made about the field, if delayed by a day, could have major financial impact on profitability."

As for the complexity of building and managing a shared LAN, for Armentrout, the key component was confidence. He says, "The critical factor is believing that you can create a secure environment." ■

Weakest Link in the Chain

Network managers say that security features in network management products are crucial.



Scale: 6 = Most important, 1 = Least important

Source: Sentry Market Research, Enterprise Networks Report



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The Many Faces of Systems Management

After decades of listening to preaching by IS gurus and academics, companies are finally taking action. They are putting into actual practice the philosophy of making information systems and technologies support and conform to corporate business strategies — and doing so with a vengeance. There's a systems management strategy to match the corporate culture and core competence of every company.

Corporate styles come in a wide variety. But for every corporation, the standardization, centralization and convergence of at least some of its systems management and network management functions is in vogue. Organizations that have standardized on client and server hardware and software components have an easier time managing their networks and systems.

"Standardization has become a key to success," notes William Warner, Jr., vice president for enterprise management at IBM. "If there is an architecture in place, with criteria for product selection and deployment of applications, you'll succeed."

The Hyatt hotel chain learned this lesson the hard way. Although it has won many awards, including plaudits for its conversion from host-based systems to Unix networks in the late 1980s, its initial management practices were hardly exemplary, staffers concede.

"We made a mistake in not carrying over some of our mainframe practices into open systems," admits Glen Holloway, LAN services manager for Regency Systems Solutions, the unit responsible for maintaining Hyatt's IS facilities. "We treated it more casually than we should have."

Part of the reason for that was that some of the LAN-based features and tools available today were not available then. Nevertheless, says Holloway, the availability of both security and systems management in a Unix environment should be as well thought out as it was on a mainframe.

The approach a company takes to systems and network management often depends upon its corporate personality. Companies that strive to be product leaders in their markets often behave one way; those that operate on razor-thin margins usually act in another. The following profiles illustrate how five corporations approach the task of systems and network management.

The Contender

Outsourcing Helps Converse Stay in the Race

Being a distant third in the hotly competitive footwear race means that Converse Inc. has to run faster every year just to keep pace with Nike and Reebok. The North Reading, Mass., company has $400 million in annual revenues, a fraction of the $3 billion in sales registered by its competitors. Even though Converse has far fewer resources, it needs to have the same advanced systems for manufacturing, marketing and finance.

Vincent Cafarelli, director of information systems at Converse, manages to support a worldwide marketing and manufacturing network on a shoestring. Despite the company's growth in the 1990s, the overall IS budget for the past several years has remained at around $4 million.

Nevertheless, falling mainframe prices and internal economies of scale freed up enough cash to allow Cafarelli to port or develop client/server applications and provide some of the services taken for granted at large companies, such as equipping the

CONVERSE

Total sales: $400 million
IS budget: $4 million
Number of end users: 350 in headquarters, 100 external sales
Key technologies: DB2/2, NetView for AIX, CA-Unicenter suite, Microsoft Mail, Lotus Notes, IBM Thinkpad laptops and RS/6000 workstations, TCP/IP, SQL

Source: Converse

company's sales force with laptops and installing Lotus Notes. But it wasn't easy.

"We fell down and skinned our knees a thousand times exploring different ways" to link Converse's geographically scattered operation, Cafarelli said. A keystone of his strategy to keep pace with Reebok and Nike is extensive outsourcing, with these third-party services managed by an integrated systems and network management staff.

For example, the network services division of CompuServe provides Converse with the connectivity required to link its headquarters, its factory in North Carolina, contractors in Indunesia and sales offices worldwide. The CompuServe store-and-forward system may not offer the flashy advantages of an on-line, real-time link among the various points uf the Converse compass, but it is effective.

Finding external solutions to internal challenges is routine at Converse. When business unit managers demanded more features and capabilities for their marketing battles with Nike and Reebok, Cafarelli had to stretch his existing staff to implement a shift to client/server applications as well as manage the various third parties.

Efficient development of applications requires not only tight integration among developers and systems and network managers, but also a parade of consultants on specific projects. "Our budget for communications consultants has doubled due tu client/server," Cafarelli says.

Third-party solutions were also needed by Converse to meet the challenges of electronic commerce. E-mail over the Internet among the company's subcuntractuns and trading partners is underway, but to achieve true electronic commerce, the focal point is a third-party network linking retailers, distributors and manufacturers. A one-year-old on-line product catalog is supported and managed by the third party, but not without a lot uf effort on Converse's part. "We've been working on it for three years," Cafarelli says. "For a long period of time, it was excruciating."

A third-party value-added network (VAN) also supports Converse's participation in electronic data interchange. The VAN was installed after key customers such as J.C. Penney, Sears and Footlocker insisted that orders and invoices flow via EDI. But the shift away from paper has cost Converse money, according to Cafarelli, who notes that his bills from the VAN have soared but the accounting department has not cut back on its staff.

The Risk Taker

At Arco, An Unorthodox Attack on Costs

"We produce a commodity, and nnly become competitive if we produce it cheaply," says Mark Armentrout, director of information technology at Arco Alaska. "If systems management helps to lower the cost of operating, then it's strategic."

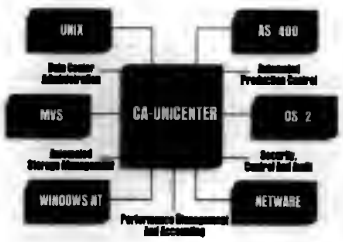
These days, more and more of Arco's systems and network management is strategic. Systems managers begao to take on LAN managemeot tasks in the mid-1980s. Today, Arco's IT staff helps the exploration and production staff find and extract the most crude at the least cost by staying with that systems management approach. The IT staff has continued its dual role of systems and network management. "It's never been separate," notes Armentrout.

During the past twu years, the Arco division outsourced its mainframe data center to another division. Since then, many crucial scientific and uffice functions have been ported to or replaced by a client/server network based on Sun workstations and

Presenting The 7
Of Systems Mana



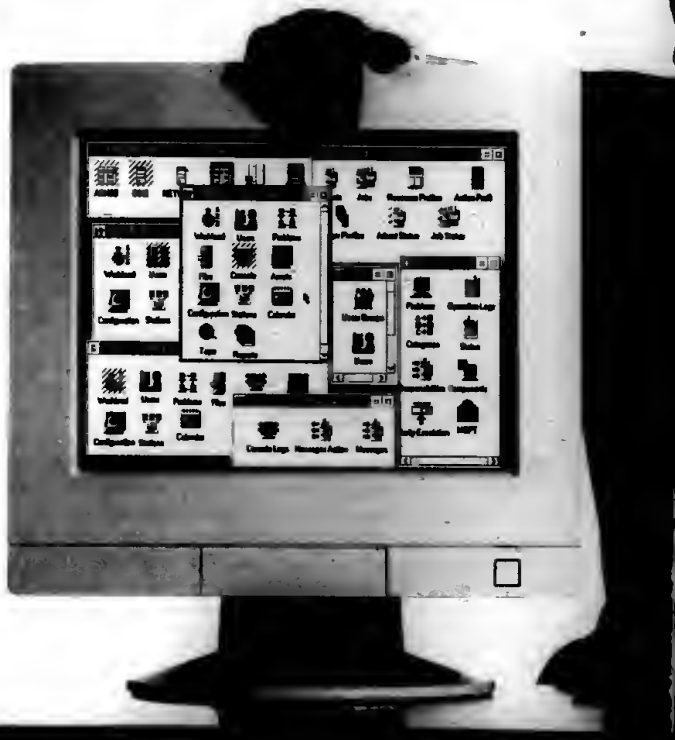
1 Replace Disparate Point Products With A Single, Integrated, Comprehensive Solution.



2 Choose A Client/Server Application That's Interoperable, Scalable and Portable.

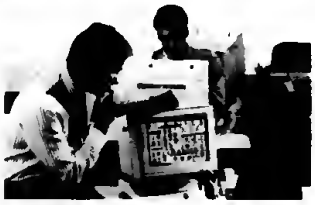
3 Demand An Open Solution That Supports All Key Industry Standards And Protocols.



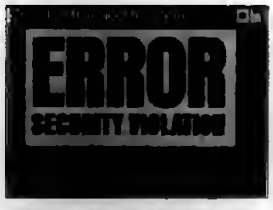


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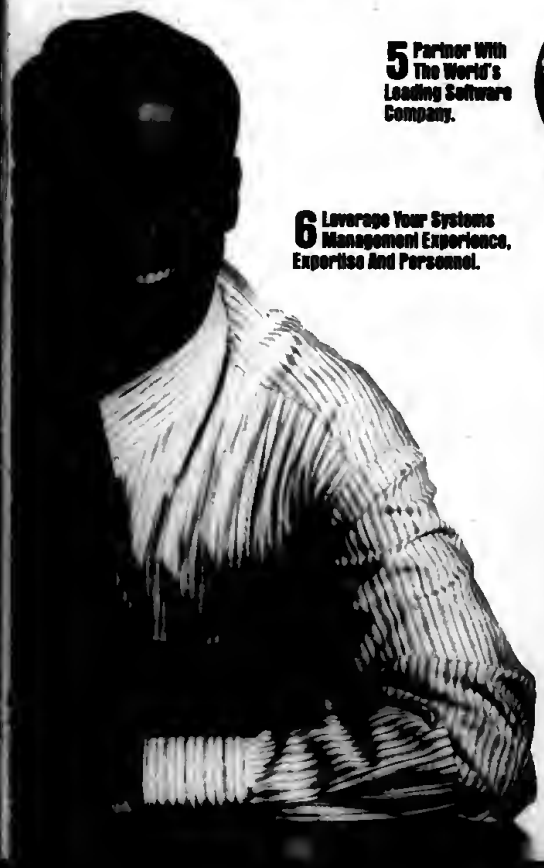


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Macintoshes.

But the shift to client/server had another benefit: putting business unit managers and users in control. "The clients must become members of the IT management team and process," Armentrout says. "Their decisions drive where the technology goes." According to Armentrout, if end users aren't intimately involved in client/server management, costs will skyrocket and the full value of the technology will not be attained.

While many IS managers bemoan the relative lack of robust backup and recovery and disaster recovery systems management tools compared to mainframe offerings, business unit managers at Arco decided that they did not need the same level of reliability in a client/server environment that they had in the mainframe world. Armentrout stands by their decision. "It's easy to say that the systems and network management tools for distributed systems are inferior to those of a mainframe, but a lot of that is due to our perspective."

The evolution to client/server requires companies to change the way they think about systems management. "Client/server technology can cater the environment to the business units," Armentrout says. "Different units have different risk profiles.

ARCO ALASKA

Sales: $16.7 billion

IT budget: not available

Users: 1,900

Key technologies: SunNet Manager, NetView 6000, Sun, RS/6000, Macintosh

Source: Arco Alaska

"An engineering group that does a lot of modeling may not need the same level of disaster recovery as other units," adds Armentrout. "Since there is nothing time-critical about the work of an engineering group, a lower-cost 24-hour disaster recovery scenario is preferable." During the mainframe era, the corporate controller selected a far more expensive disaster recovery policy. "That's why it is so important to get business people involved in management decisions," he notes.

Even though today's systems and network management tools are less than perfect, Armentrout contends that mainframe-like capabilities are not always the right approach either.

"I'm not going to recreate the glass house," he says. "I want to put the minimum in place necessary to run the business. My primary desire is to run at low cost."

Taking advantage of distributed computing to reduce costs and increase service includes use of the Internet. Although Arco won't soon be selling "Internauts" motor oil on a home page via the World Wide Web, it does use the 'Net to provide local server access to several of its facilities. Corporate telephone directories, policy manuals, applications and other materials are easily accessible internally at low cost, due to wide deployment of Mosaic browsers on client machines.

The Globalist

At Levi Strauss, One Size Fits All

The blue jeans that Levi Strauss & Co. makes are ubiquitous; some day its network will be too. One of the company's corporate goals is to have a consistent brand image around the world. As a result of that mission, "all of our key strategic issues are global," says Gevenie Delsol, director of global network services for the company.

Levi Strauss, which last year enjoyed sales of more than $6 billion, needs a global network to support a worldwide virtual enterprise consisting of subcontractors, distributors and retailers. To achieve that, the company had to shift from a mainframe-centered IS structure to one in which the network was the core processing resource. "That puts more reliance on management tools, to not just manage change and solve problems but to predict what will happen," Delsol says.

Levi Strauss has already deployed 182 servers

LEVI STRAUSS

Total sales: $6.1 billion in 1994

IT budget: Currently $200 million, but part of a three-year allocation of $850 million

Total clients: 10,000

Key technologies: OpenView, Tivoli, Optivity, Lattice

Source: Levi Strauss

worldwide with another 180 servers in rollout. Currently the servers provide only bare-bones file and print services, but the company plans to add global E-mail, video conferencing and other applications, which it will either move from the mainframe or build from scratch.

Overall, the project is part of an $850 million revamping of its technology strategy. "We're investing heavily in upgrading our worldwide operations to deliver superior customer service," notes George James, senior vice president and chief financial officer. The massive conversion of the company's IS infrastructure will not be completed until 1996.

Eventually, the company's 10,000 employees plus its major trading partners will be linked in a web managed by data centers in Dallas, Brussels and Singapore. This IS strategy was formulated by CIO Bob Eaton and the Global Network Forum, a group of 35 managers from the decentralized business units.

To minimize the headaches that are sure to accompany a strategy this ambitious, the forum decided to adopt systems and networking standards such as Microsoft Windows and Microsoft Office, Novell NetWare running Ethernet for the LANs, and TCP/IP for the WAN.

In addition, the forum selected Hewlett-Packard's OpenView as the global systems and network management platform. "OpenView is better suited than other products for a global environment," explains Delsol.

Another reason for the selection of OpenView, Delsol notes, is that "we saw HP's commitment to being open and adhering to standards." OpenView will also help the company integrate its different computing platforms around the world, so that the network "appears seamless to the user," she says.

Last year, Levi Strauss united systems management and network management. Delsol gives three reasons for that decision: the convergence of the tools themselves, economies of scale and the need for cross-training within the company.

Automated systems and network management tools are crucial if Levi Strauss is to realize its global IS vision. Backup and restore and other heretofore manual systems tasks are scheduled to be automated. "We believe in automating any process that we can, from trouble tickets and alerts to help desks," says Delsol.

"We can't build a support staff large enough to do it manually," she adds. "Levi Strauss' business is making and selling jeans, not technology. We need to make the technology work for us."

The Conglomerate

Ciba-Geigy's Delicate Balancing Act

"You name it, we got it" is a familiar refrain in IS circles, and one heard often at the Ardsley, N.Y., headquarters of Ciba-Geigy Corp. The drug, chemical and car parts maker consists of 14 business units, each with its own technology policies and procurement practices to support 30,000 users worldwide. Of that number, the 13,000 in the U.S. "are working with every type of computer imaginable," says Harry Tompkins, manager of telecom systems.

Simplifying network and systems management within the decentralized context at Ciba-Geigy requires a delicate balancing act. The corporation's various divisions are in the process of shifting to a client/server architecture supported by Unix servers and high-end AS/400s.

In the new infrastructure, network and systems management will be combined in a two-tiered structure. Divisional help desks will handle routine network troubleshooting as well as systems management chores. The second tier is the corporate network control center, which will manage the WANs and support the help desks.

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TEXAS INSTRUMENTS

CIBA-GEIGY

Total sales: $15 billion in 1993

IT budget: Not available

Total users: 30,000 worldwide, 13,000 in the U.S.

Key technologies: NetView for AIX, OpenView, NetView for MVS, Polycenter, SunNet Manager

Source: Ciba-Geigy

Although the central IT group develops standards and guidelines, it lacks an enforcement arm. "We make suggestions to the different groups, but the company does not have any network police that go around and check the equipment," says Tompkins. "Each group can make its own decisions. But if a group selects equipment which is not our recommendation, it is on its own if problems arise."

Ciba-Geigy has historically used a multitude of systems and network management tools, but now wants to standardize on one. The front runner is currently NetView for AIX, but Tompkins says he will not commit to it until he sees how NetView evolves to handle not only systems and network management, but also the management of databases and applications.

Because technicians need to see applications and databases, integration between systems and network management has become a key issue for Tompkins. Complicating the problem is that he is not sure how well-developed the tools currently available are to take on those tasks, although IBM is developing an umbrella framework that would allow NetView for AIX to assume a broader resource management role.

Another resource management challenge is the growing use of object-oriented applications software. "If applications become more object-oriented, they may have more impact on the network," Tompkins notes. "We will need tools that can take a look at software from the middle layer up and pinpoint any problems.

"Unless those tools become available, companies will not be able to fully manage client/server applications," says Tompkins. "That could slow deployment."

Tompkins faces the same situation as other IS managers: Increases in network and systems traffic, users and applications do not always translate into increased staff. Ciba-Geigy's network operations center in Greensboro, N.C. has about a dozen staffers, a population that has not gone up in the past few years.

"The days of adding one or two people when work increases are over," Tompkins says. But the automation of manual functions may help close the gap between the need for personnel and the actual number of staffers.

The Centralist

At McDonald's, Integration is on the Menu

Operational efficiency has always been the hallmark of McDonald's Corp. The same holds true for its IS group. The corporation has achieved its strong and consistent growth in revenues and profits by implementing a centralized management structure for its worldwide chain of restaurants and regional management offices. The coming consolidation of resource management is a natural extension of that approach.

Currently, McDonald's has 25,000 users in its headquarters campus outside Chicago and another 1,000 at regional offices. Every user has a PC run-

Continues on Page S-30

MCDONALD'S

Total sale: $7.4 billion in 1993

IT budget: (Not available)

Total users: 26,000

Key Technologies: SunNet Manager, Optivity, Legent XPE, NetView

Relief Is on the Way . . . Someday

That hissing noise you hear emanating from hundreds of windowless offices around the world is the sound of network and systems managers expressing their discontent over the currently available selection of offerings from vendors. The lack of interoperability, scalability and integration of both systems management and network management tools has become a major source of user dissatisfaction.

"Products are limited today. They simply do not work well in a heterogenous environment," says Frank Belland, senior communications consultant with Lockheed Martin Corp., in Orlando, Fla. Belland's comments echoed the complaints of the dozens of network and systems managers who were contacted during the preparation of this White Paper.

Roughly half the respondents to a recent survey of IS managers by Sentry Market Research said that their organizations had not been successful in implementing network management technology in a client/server environment. According to those surveyed, three things were proving to be the bane of both network managers and systems managers. The problem trio consisted of product complexity, the proliferation of incompatible point solutions and the incompleteness of current offerings.

One observer paints a bleak picture of the current situation. "The network and systems management market is a mess," says James Herman, vice president of Northeast Consulting Resources Inc., a Boston consulting firm specializing in networking issues.

"The technology offerings are highly fragmented and most of the little pieces don't fit together," Herman adds. "There are lots of different management models and no one has a complete offering. IS managers despair of all the choices, overlaps and gaps."

Saying they understand why customers are complaining, vendors claim that their upcoming products will better meet their users' needs. But even if that is true, huge integration tasks lay ahead, according to analysts who follow this area.

> Users have been systems and network integrators, but the vendors should be doing that.
>
> *Craig Benson, chairman of Cabletron*

Furthermore, billions of dollars are at stake. IBM, Hewlett Packard, Sun Microsystems, Cabletron Systems, Computer Associates, Legent and other vendors are spending hundreds of millions of dollars in their corporate quests for a large share of the market for resource management software — a market which research firm The Gartner Group estimates will reach $6 billion by 1998. "The market is growing approximately 35% per year," says Gartner Group director Barbara Sannerud.

Role reversal

With that growth will come changes. "Users have been systems and network integrators, but the vendors should be doing that," says Craig Benson, chairman of Cabletron Systems, a leading supplier of network hubs and a company that recently entered the network management market with its Spectrum package. In terms of reliability, Benson considers the telephone network to be the model of what a computer network should be. "When you pick up the telephone, you don't wonder if the dial

tone will be there," he says.

Benson is not the only CEO who senses customer discontent. During one of his first meetings with top management, then-new IBM chairman Louis Gerstner called systems management "the number one issue facing customers," recalls Lynn Wilczak, director of systems management investments, plans and controls for the network software division of IBM.

Interoperability is key

As a result, the large systems suppliers are repackaging their existing management tools. They want to augment these tools into frameworks or platforms that will accommodate the vast array of point solutions which seem to have cropped up everywhere across the distributed processing landscape. IBM, Hewlett-Packard, Sun Microsystems, Cabletron and other companies are rolling out object-oriented platforms that feature interoperability with a variety of hardware and software packages, as well as tools from other vendors.

To demonstrate their efforts to ensure interoperability, these vendors point to not only the significant investments they have already made but also an increasing number of alliances with other software vendors. "Our goal is to make our framework as strong as possible," vows Wim Roelandts, senior vice president of Hewlett-Packard. He claims that the number of software developers that have built hooks into their applications to work with OpenView has topped 200.

IBM, with its new Karat platform, is adopting a similar strategy: trying to offer a comprehensive solution for the enterprise and workgroup markets. But there is room for alternative products, notes William Warner, Jr., vice president for enterprise management at IBM.

"Customers may prefer a trouble ticket or performance management package from another vendor," says Warner. "In addition, there will be lots of hard-

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ware-specific applications from hub and router vendors. We must be able to accommodate them." IBM's NetView association program, he notes, includes several hundred companies whose products will work with Karat.

The rise of client/server has propelled the integration of systems and network management across multiple platforms. "In the complex world of client/server, people want an integrated solution," notes Sanjay Kumar, president of Computer Associates. "When we talk to customers, their top concern and number one priority is how to manage complex systems and networks. For them, robust management of the environment is critical."

> The fact that we have more management software than anybody is both our strength and our weakness.
>
> *William Warner, Jr., VP for enterprise management at IBM*

Computer Associates, Legent and other systems management vendors are now working with network management providers to improve the integration of their products. For instance, middleware developed by Legent, along with co-development and licensing agreements recently reached with other suppliers, enables the vendor to provide a platform of linked products.

Likewise, the recent release of CA-Unicenter for OpenView and the upcoming transparency of event monitoring on the two products are the result of collaborations between Computer Associates and Hewlett-Packard, CA's Kumar points out. "We have been working on

ways to go when UNIX systems.



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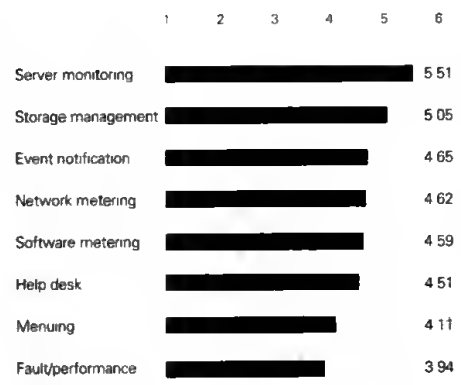
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Figure 6

Monitoring Software Tops List of Important Products

Server monitoring and storage management are the top two functions when it comes to managing the network infrastructure.



Scale: 6 = Most Important, 1 = Least Important

Source: Sentry Market Research, Enterprise Networks Report

this for a long time," he says. "It extends our arms and tentacles to other products and gets at things we couldn't do before."

Efforts to provide interoperability are, to put it mildly, non-trivial tasks. "Most current tools are limited," notes Rick Villars, director of network management research for International Data Corp. "Cross-platform is an important consideration. Many vendors are struggling to add that capability."

Both the concepts and the designs of IBM's Karat, the framework technology from Hewlett-Packard code-named Tornado, and other "manager of manager" approaches are sound, but each vendor faces tremendous obstacles. "IBM has a lot of work to do in making the transition to the type of management products that users now desire," Villars says. "The architecture has been well thought out and there is a possibility it will meet customer requirements."

"But IBM has to develop a comprehensive data model, determine how to migrate its mainframe capabilities to the distributed environment and then integrate all the network management systems which run on different systems together," Villars adds. "That is no small task."

The difficulty of that upcoming effort is acknowledged by IBM's Warner. IBM sells more than 160 different systems and network management software products. "The fact that we have more management software than anybody is both our strength and our weakness," he says.

On everyone's lips

Many network and systems managers are voting for HP OpenView as their favored solution in the short term. "HP OpenView is part of every single discussion" at client meetings about future network management and systems management procurements, notes John Kril, national service leader for IT strategy and architecture for accounting and consulting firm KPMG.

But Microsoft's Systems Management Server is also beginning to attract a lot of attention from systems managers. Microsoft contends that for a large corporation upgrading thousands of desktops to the next version of an application or operating system, the deployment of SMS can result in the savings of millions of dollars and hundreds of person hours.

Although some customers may be wondering how well SMS will operate with non-Windows platforms, the companies that are the early adopters of the package have so far been enthusiastic. "We think SMS may become our umbrella system and network management system," says Larry Shaw, PC coordinator for Nordstrom Inc., a retailer based in Seattle.

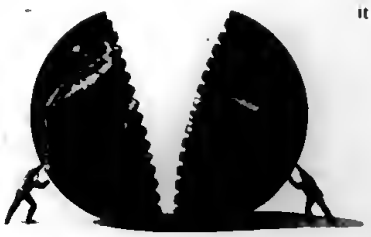
Nordstrom's experience with SMS revealed it to be "a comprehensive package that includes asset management, help desk, software distribution and troubleshooting capabilities," says Shaw. "The beauty is all of the different modules work well together."

It's not often you hear IS managers talk about how well their systems management tools and network management tools interoperate. With any luck, SMS may be a harbinger of better days to come. ■

Holistic Management, Not Holistic Managers

Sure, the administration of a distributed computing infrastructure ideally demands a coordinated approach to systems management and network management.

But although the disciplines of network and systems management are drawing closer together, it is a stretch to believe that their functional overlap will lead to a merged profession for systems and network managers.



Much of the type of work that network managers are doing these days would have been considered systems management functions just a few years ago.

For example, backing up a server falls under the traditional definition of systems management. Or consider System Management Server from Microsoft, which enables network managers to control software distribution. Although the majority of network managers would consider that function to come under their purview too, until recently, software distribution would have been within the jurisdiction of systems managers.

My point is this: While the functional overlap between network management and systems management will continue, the people who conduct the tasks of network management and systems management have very different backgrounds. Nor do they seem interested in performing each other's functions.

Paul Strauss is Senior Analyst, Networks & Communications at Sentry Market Research.

Recent studies by Sentry Market Research indicate that network managers and systems managers have different attitudes towards products and even towards the importance of certain kinds of management, and they tend to resist being pushed into areas not clearly their own.

This point can be illustrated by both sides' attitudes toward object-oriented technology. Systems managers think highly of it. Network managers, however, view it as another complex thing they will have to learn . . . and they prefer not to.

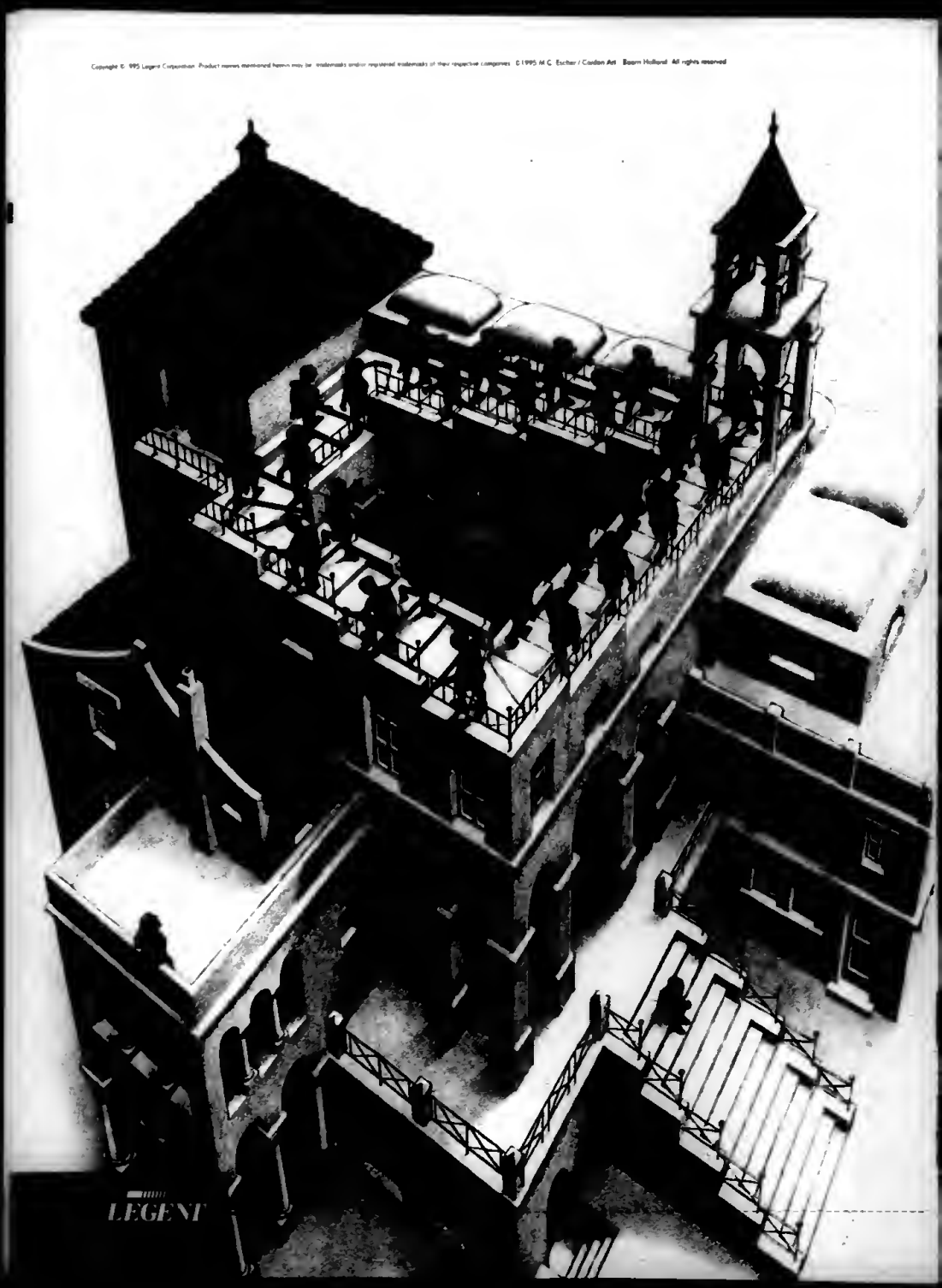
Another difference between the two groups is in the way they view the help desk. Typically, network managers are uninterested in help desks; they regard them as the systems manager's responsibility. But network managers are very interested in both backup and access control software, two products that contain features they consider vital for maintaining the health of the network.

Because help desks are vital for maintaining the health of multiple, networked applications, it seems only logical that network managers should also be interested in them. But when it comes to help desks, most network managers say, "Whoa, that's not my job, Jack."

Systems managers tend to resist having to learn the techniques of setting up routing tables and having to learn how to diagnose Token Ring beaconing,

Continues on Page S-30

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The Many Faces of Systems Management

Continued from Page S-22

ning either DOS or Microsoft Windows and the ability to access NetWare or Unix servers. A staff of 20 network supervisors and five systems managers is in place to support them. The network is managed primarily with SunNet Manager, with Bay Networks' Optivity overseeing the hubs and routers. Systems management of the IBM mainframes is done via Legent Corp.'s XPE tool suite. NetView is used for SNA network traffic management.

This year, McDonald's began a formal evaluation of alternative network and systems management products. According to Michael Disabato, manager of strategy development, the company is looking for a resource management platform, one that ideally would manage not only the networks, operating systems, applications and databases, but also the PBXs and the communications network. "Long term, we want the help desk personnel to see all of those systems," says Disabato.

Several years ago, McDonald's issued a corporatewide edict to contain support costs. Since then, the corporation has not increased its systems and network management staffs. By consolidating the management of network, systems, applications and other components, McDunald's could continue to hold its staff costs in check.

However, Disabato is not optimistic that vendors will soon meet his needs. "All the software vendors are concerned with porting their software to more platforms rather than developing real-world applications for customers," he says.

"The systems available lack features, such as alarm correlation, which would make them more attractive to companies running large networks," Disabato adds. "Suppliers do not view that capability as a real need."

McDonald's would also like to implement a management system that could automatically determine when a problem arose, fix it and only notify an administrator when it could not make the fix. But, according to Disabato, "vendors don't hold that as a high priority." ■

Holistic Management

Continued from Page S-27

windowing out, runt packets, packet storms and other communications problems that are not CPU-related.

But when something goes wrong with a node, the cause could be either a systems problem or a network problem, and the two groups must cooperate to solve it. Therefore, a company must have links in place between network management stations and help desk stations.

Client/server computing has resulted in more than just a linking of processors throughout the enterprise with mission-critical applications running on them. The configuration itself has become a networked system, requiring a cross-functional approach to management.

But this doesn't mean that one individual can handle both network management and systems management functions (except on very small LANs). Although some cross-training is required, the power of specialization should not be sacrificed in our increasingly complex computing world. There will always be a need for at least two kinds of specialists. ■

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InfoAccess, Inc. has introduced Guide Passport.

According to the Bellevue, Wash., firm, Guide Passport is a template-based guide for corporate publishing from word processing formats. It lets users and publishing teams generate fully linked publications, customize screen interfaces and modify publications after translation. Its templates recognize style sheet information, text attributes and patterns in word processing files.

Guide Passport includes pan and zoom controls for graphics and tables. It also features automatic hypertext linking of indexes, tables of content and cross references.

Guide Reader is also available with additional graphics, bookmarks, annotations and full-text queries.

Guide Passport costs $1,875. Guide Reader costs $95.

▶ *InfoAccess*
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Argent Software, Inc. has introduced Argent Queue Manager (AQM) for Microsoft Corp.'s Windows NT on the Digital Equipment Corp. Alpha/AXP platform.

According to the Torrington, Conn., company, AQM was designed as a tool with mainframe power capable of building mission-critical applications. It is a batch-processing facility for Windows NT that is based on batch-scheduling systems on mainframes such as Digital's VMS.

Pricing for the AXP version of AQM starts at $3,600.

▶ *Argent Software*
(203) 489-5553

Revelation Technologies, Inc. has released OpenInsight for Workgroups: Lotus Notes Edition.

According to the Stamford, Conn., company, the product is a repository-based development environment of tools and utilities for designing, developing, testing and deploying workgroup applications for Lotus Development Corp.'s Notes.

OpenInsight for Notes features a window designer, systems editor and debugger, report designer and Basic-compliant language for database and text manipulation.

OpenInsight for Notes costs $1,995 per development seat.

▶ *Revelation Technologies*
(203) 973-1000

LTC has announced Telcom Fax 3.0 for Microsoft Corp.'s Windows NT, fax communication software.

According to the Syracuse, N.Y., company, Telcom Fax 3.0 includes print-to-fax drivers, user-definable folders, multiple phone books, cover page graphics, autoprint on receipt, scheduling features and connection with Microsoft's Mail. Telcom Fax 3.0 also includes an autoprint feature that routes received faxes to a printer. It will allow the simultaneous use of several fax modems.

Telcom Fax 3.0 costs $219.

▶ *LTC*
(315) 673-0120

Pioneer New Media Technologies, Inc. has introduced DRM-624X, a six-disk changer.

According to the Long Beach, Calif., firm, DRM-624X features a six-disk magazine that provides close access to a multidisk database without manual disk switching or special command routines. It was designed as a multidisk solution for data archival, imaging management, multimedia applications and PC environments.

DRM-624X features a high-speed 4.4x drive. It has a data transfer rate of 676K bit/sec. and is capable of changing disks in less than five seconds.

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Users take sides on modular vs. stackable

Products have different advantages, issues

By Michael Fitzgerald

Forget Macintosh vs IBM, Windows vs. OS/2 or Unix vs everything else. The latest war in the computer industry is modular vs stackable.

Modular and stackable, the two dominant types of configurations for switches and hubs, generate heated debate in the user community.

The reason for the strong feelings is the very different pros for the two types of products. As near-commodity products, stackable switches and hubs cost significantly less than their chassis-based counterparts and are easy to move around and expand. But the modular, chassis-based models, which accept upgrade modules and are more scalable, have become popular as a cornerstone for enterprise networks.

"You find bigots in either court," said Kevin Watkins, director of enterprise connectivity at Coretech Consulting Group in Wayne, Pa. Coretech advises large firms on equipment purchases.

Conflict aside, levelheaded users will find each type of product has its place.

"Flexibility is the key overriding issue," said Frank Dzubeck, president of Communications Network Architects, Inc., a consultancy in Washington. Dzubeck said users who have a fast-growing LAN will tend to benefit from stackable hubs because they are easy to move around and a network manager can build on top of them if more users are added to the LAN.

"Stackables tend to appeal to people who have [flexibility] problems; for instance, they don't know how many users they're going to connect," Dzubeck said.

Management an issue

But heavy-duty networks are often better served by a chassis-based modular switch or hub. For one thing, the modular models are easier to manage than, say, several stackables linked together. Although most stackables come with built-in Simple Network Management Protocol capability, multiple stackables do not lend themselves to being managed as a single entity, nor do they have a single point of failure.

At Entergy Services Co. in Gretna, La., the information systems staff practices both strains, though "we prefer modular," said Louis Cureau, a senior information technology specialist.

Cureau said the utility has some stackable switches and hubs, most deployed in its remote sites. It purchased them because of their low price per port. But for the large corporate network, the company uses the Series 3000 and 5000 modular hubs from the former SynOptics Communications, Inc., now Bay Networks, Inc.



Cureau said a modular design "fits in" with the way Entergy is designing its IS environment, with a heavy focus on shared backplanes.

"For space reasons as well as the ability to manage and control it, [modular] is easier," Cureau said.

Another issue for users is that stackables may support gigabit per second data flows internally, but the external wires that link them typically support only 100M bit/sec. data transactions.

Stackables also tend to sell through broad distribution channels, while the larger, modular-type boxes tend to be sold directly by the vendor — another factor for users to consider.

What it boils down to

For many users, the modular vs. stackable debate comes down to a large network vs. small network issue.

"That's the trend going forward: small to medium-size networks use stackables, while the ... larger networks need the scalability of the chassis-based device," Watkins said.

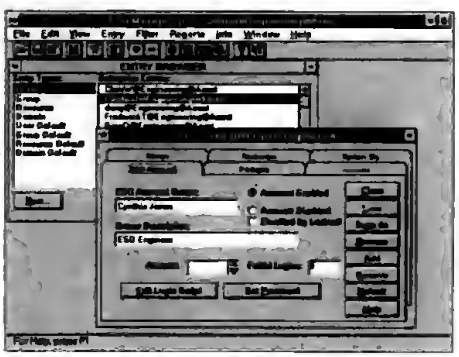
Watkins, who confesses that he prefers stackable to modular hubs, said the modular products offer users with a variety of network protocols an advantage that comes from their backplane-based architecture. The backplane was designed to support multiple types of network protocols, and now the trend is for vendors to build to support for the network protocols of the future, including Asynchronous Transfer Mode.

Security tools and policies go hand in hand

By Gary H. Anthes
CHICAGO

Users attending the recent Information Security Conference here said protecting computers is getting more difficult as budgets shrink and systems grow more complex.

"Not to worry," answered suppliers at the conference, which was sponsored by Gartner Group, Inc., the National Computer Security Association and CMP Publications, Inc.



Axent's OmniGuard/Enterprise SignOn *offers a single point of control for user authentication and authorization*

The vendors revealed a bevy of new products, services and teaming arrangements aimed at simplifying and automating security functions.

No matter how many sophisticated security tools a company has, it also needs good security policies and audits to measure compliance with the policies, a number of users said. "You cannot measure security by the number of security incidents you have. That's tip-of-the-iceberg stuff," said Peter S. Brown, director of computer security solutions at Motorola, Inc.

Paul Styrvoky, senior electronic data processing auditor at Mobil Corp., said Mobil employs "best practices" teams to find innovative security solutions internally and at other companies. He also said he looks for software tools that are easily tailored to the company's security policies. "We have strong security guidelines and good tools for monitoring compliance," he said.

Auditing tool

For example, Mobil uses Axent Technologies' Enterprise Security Manager (ESM), a tool that audits systems for compliance with policy, reports deficiencies and in many cases automatically corrects the flaws it finds. "It has really made my life a lot easier," Styrvoky said.

Nevertheless, Styrvoky said he is challenged by the time it takes to make changes in a large company. He said it took two years to bring ESM into Mobil.

For its part, Axent, in Rockville, Md., announced two products at the conference. OmniGuard/Enterprise SignOn is a "single sign-on" product that offers a single point of control for user authentication and authorization. Slated to be available late this year, it is intended to solve two problems: cumbersome user administration and a proliferation of user passwords.

Axent also introduced OmniGuard/Intruder Alert, which detects network intrusions in real time. If an event violates a user-specified security rule, the product can take various actions such as blocking access by the offending user, trig-

Security, *page 65*

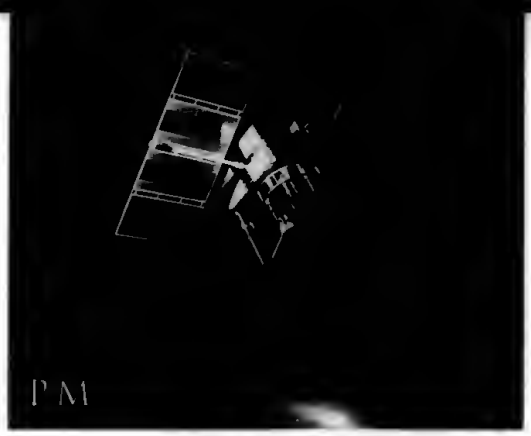
Team talk

Computer conferences often have birds-of-a-feather sessions for attendees with common interests. At the computer security conference, it was vendors who flocked together.

Mergent International, Inc. in Rocky Hill, Conn., and Groupe Bull announced a linkup by which Mergent will sell Bull's AccessManager, the security component of Bull's suite for managing heterogeneous environments. Mergent said it will integrate AccessManager with its products for PC security and single sign-on.

Motorola announced alliances with ICL Enterprises North America in Reston, Va., and Siren Software, a division of Vicor, Inc. in Palo Alto, Calif. Motorola's new Information Security Solutions unit will offer ICL's AccessManager network security product, and Siren will integrate Motorola's Signet messaging security system into its messaging products.

Acma Computers, Inc. in Fremont, Calif., said it will combine Axent's technology for secure electronic mail with National Semiconductor Corp.'s PCMCIA technology for personal, portable data security. The product will use public-key cryptography for user authentication, confidentiality and message integrity, the companies said. — *Gary H. Anthes*



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SPECIAL REPORT

The 1995 CEO/CFO survey



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200 SENIOR EXECUTIVES SPEAK THEIR MINDS ON IS MANAGEMENT'S PERFORMANCE

SURVEY HIGHLIGHTS

HOW MUCH DECENTRALIZATION?

AGAINST THE ODDS: FROM CIO TO CEO

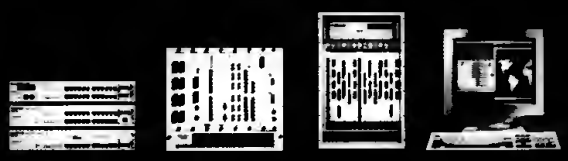
Bell+Howell's CFO William J. White




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MARK ALLARD

Eager but edgy, top execs want their IS departments to produce fast, flexible systems that wow customers and grow markets

By Joseph Maglitta

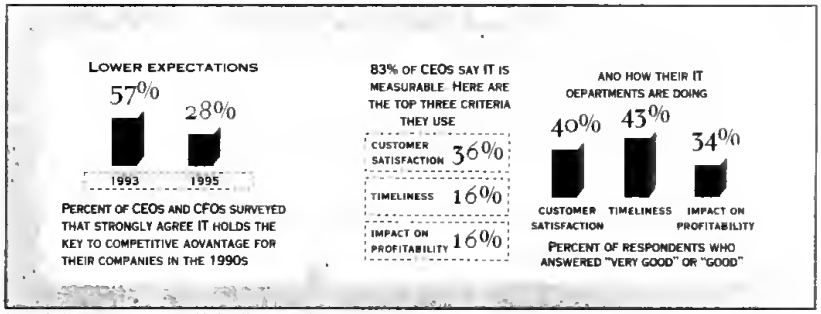
Spending money on information technology is tricky business, says William J. White, chief executive officer of Bell & Howell Co. "Half is very worthwhile," he says, echoing the famous truism about advertising. "I'm just not sure which half."

He's only half joking. White, head of the $720 million diversified manufacturer and electronic publisher based in Skokie, Ill., has plenty of company. Most of the 200 chief operating officers, chief financial officers and CEOs polled in *Computerworld*'s 1995 CEO/CFO survey would agree.

The latest biannual poll shows strong interest in using IT to improve customer satisfaction and expand market share.

But there's also continued puzzlement about how best to leverage technology. Barely half of the respondents (52%) say they are getting their money's worth from information systems spending. While that's slightly better than in 1993 and a big improvement since 1989, it's hardly ecstasy.

"There remains a level of frustration about why things can't happen more rapidly, with more predictable results and cost," observes Robert Mittelstadt, director of executive education at the University of Pennsylvania's Wharton School of Business. Mittelstadt should know. Last year, some 10,000 executives, including 1,000 CEOs, were trained by the Philadelphia-based school.


LOWER EXPECTATIONS
57%
28%
1993
1995
PERCENT OF CEOS AND CFOS SURVEYED THAT STRONGLY AGREE IT HOLDS THE KEY TO COMPETITIVE ADVANTAGE FOR THEIR COMPANIES IN THE 1990S
83% OF CEOS SAY IT IS MEASURABLE. HERE ARE THE TOP THREE CRITERIA THEY USE
CUSTOMER SATISFACTION 36%
TIMELINESS 16%
IMPACT ON PROFITABILITY 16%
AND HOW THEIR IT DEPARTMENTS ARE DOING
40%
43%
34%
CUSTOMER SATISFACTION
TIMELINESS
IMPACT ON PROFITABILITY
PERCENT OF RESPONDENTS WHO ANSWERED "VERY GOOD" OR "GOOD"

Source: Exclusive 1995 Computerworld CEO/CFO survey of 200 senior executives



NAJLAH FEANNY/SABA

Here are some other highlights

● Two years ago 57% of top bosses polled by *Computerworld* said "IT held the key to competitive advantage" for their organizations This year the figure plunged back to 1989 levels down to 28%

● "Improving IS systems technology and automation" ranked right behind boosting sales and customer satisfaction as a top corporate goal Both are strongly linked in executives minds

● More companies are widening their definition of value beyond traditional return on investment (ROI) analysis Customer satisfaction has emerged as the top method for measuring IS performance and investment

● Three-quarters of the respondents say they are paying more attention to IT compared with a few years ago Most spend about 10% of their time on technology matters Technologically they are most interested in client/server

● A record-high 88% use a PC or terminal daily That's up from 81% two years ago and double the usage in 1989 Half say they use an executive information system Some such as Bell & Howell's White learned to program in past careers

● Two years ago "technical ability" was the most-desired CIO trait This year "leadership ability" shot from fourth to first place The reason IS has become too big and important to leave to weak managers

● In general overall efficiency, internal communication and IT support of corporate innovation were judged fair The ability to provide external market and competitor information received the weakest mark

All but the staunchest Luddites now accept hefty spending on IT as unavoidable And it's a good thing The typical Fortune 500 company will shell out tens or hundreds of millions of dollars or more on IT this year

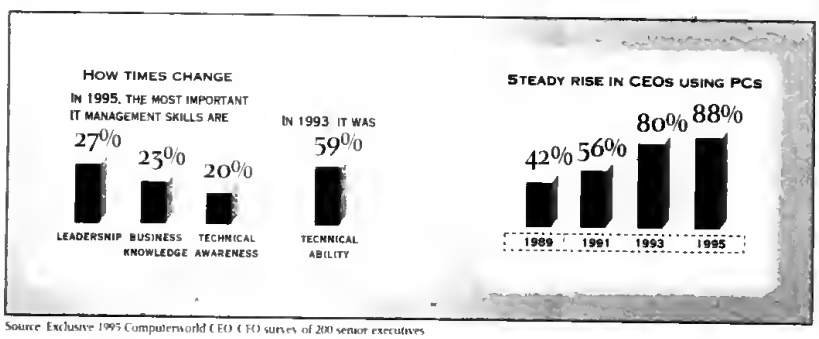
With stakes so high it's no wonder that techno-boosters and techno-busters alike continue to demand bigger, surer, faster payoffs from their IS groups But that desire is balanced by a maturing view that has evolved, if grudgingly, since the mid-1980s

Today, after a decade of often disappointing (and costly) computing adventures, more top executives are grasping what sophisticated chief information officers have known for years Information technology is best used as enabler, not savior

"There's more realism now," says Gerald T Knight, CEO at The Toro Co in Bloomington, Minn "Anybody can get state-of-the-art quickly across all systems Technology moves too quickly to provide any kind of advantage"

Some, such as Richard L Anderson, senior vice president of administration at $3 9 billion, Seattle-based insurer Safeco, disagree "Capitalizing on the technology available out there can be a very high-level proprietary advantage," he says, "I regard it to be one of our three or four primary points of advantage"

To illustrate, he points to a PC-based automobile underwriting expert system installed a few years ago Now, 50% of policies are authorized, laser-printed and



Source Exclusive 1995 Computerworld CEO/CFO survey of 200 senior executives

mailed the day of application. That's a very effective competitive use," Anderson notes.

Though fast payoffs are still prized, more executives seem willing to take a longer view. And bosses want IS to turn on a dime in response to market challenges.

Connecticut Mutual Life Insurance Co., for example, just completed a two-year, $10 million project to create "an applications engine" that it says will let developers build applications more quickly. Jan Scites, COO and president of customer service, says the new software development approach will let the Hartford, Conn., insurer quickly introduce new product offerings in three to six months at one-fifth the former cost.

"We can build products fast enough to keep up with the market," Scites says. "If one of them bombs, we can stop trying to put a square peg into a round hole. We'll just do another." While the approach may not work as easily elsewhere, it's a natural for the financial services industry.

Customer Focus Key

"Businesses used to lock up a channel for 10, 15 or 20 years," says Knight, who once served as NeXT Computer, Inc.'s CFO under Steve Jobs. "Today, channels of distribution and customer bases are changing a lot more rapidly."

To keep up, Toro's 75-person IS department has just begun a three-year effort to install an enterprisewide SAP America Inc. client/server system that will eventually link dozens of existing databases. "We're not doing this to get savings out," explains Knight. "We need the added flexibility of going to market and of faster product innovation. Our ability to respond to the customer will be faster and more reliable. We need the ability to support a fast-changing business model."

Many companies are counting on information technology to continue business transformation. IT has already transformed Bell & Howell, a manufacturer of movie projectors and mailing machines, into a diversified producer of CD-ROMs, optical discs, on-line catalogs, computerized mailing services, Internet-based information services and more.

"IT is one of the most exciting areas around," exclaims White, a technology champion who spends nearly 50% of his time on technology issues.

Even so, White wonders whether his firm's eight subsidiaries can better leverage IT to boost buyer satisfaction and focus sale representatives on "high probability calls." As Bell & Howell prepares for an initial public offering, he'd like to expand an existing system that tracks formal surveys of customer needs and satisfaction. "Some of our companies are more formally gathering and using market intelligence from customer visits made from people by all levels."

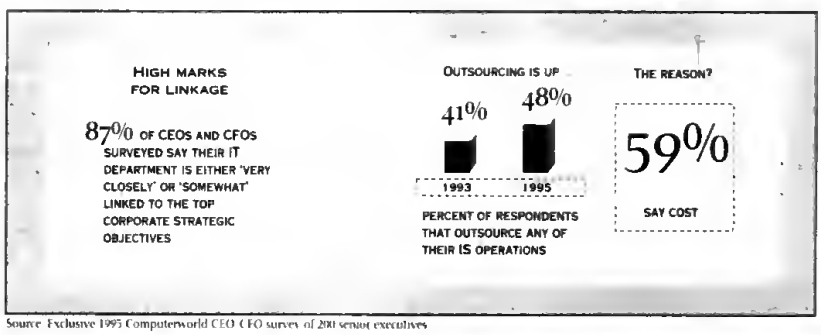
Views Broaden

Experts and executives say reengineering has opened many eyes about technology's potential.

Take Steven Berlin, Citgo Corp.'s senior vice president and CFO. "We thought that if you put in faster processing, we'd get a lot of different abilities to roll up and analyze data," he explains. "But we weren't getting the benefits we thought we should be getting.



STEVE WOIT


HIGH MARKS FOR LINKAGE
87% OF CEOS AND CFOS SURVEYED SAY THEIR IT DEPARTMENT IS EITHER 'VERY CLOSELY' OR 'SOMEWHAT' LINKED TO THE TOP CORPORATE STRATEGIC OBJECTIVES
OUTSOURCING IS UP
41%
48%
1993
1995
PERCENT OF RESPONDENTS THAT OUTSOURCE ANY OF THEIR IS OPERATIONS
THE REASON?
59%
SAY COST

Source: Exclusive 1995 Computerworld CEO/CFO survey of 200 senior executives

"Users expect you to wave a magic wand and their network problems are solved. They don't understand how much time it takes just to diagnose the problem."



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Contrary to popular belief, network technicians are not miracle workers. If the network goes down, it's their job to sift through alarms, locate problems and, time permitting, try to find solutions. Throw in the inevitable complaint calls they have to return and it's a wonder these people even have time for a cup of coffee. That is until now.

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Then the light went on. We had a 1950s way of working and 1990s technology."

So Citgo's CEO brought in consultants to help gain a fresh look. Over an eight-month period, every executive and employee got continuous improvement training. Berlin credits the moves with getting the ball rolling to recreate the whole 4,600-person company, including the 180-member IT department.

The Tulsa, Okla.-based firm is now planning to replace aging systems handling such functions as general ledger, maintenance tracking and personnel.

"We finally realized the problem is on the people side," Berlin explains. "The new approach starts with company culture and every employee and what they do and how they do it. Everybody is thinking about the big process and how they fit it."

"The transformation necessary to take advantage of technology is more complex than [executives] give it credit for," says David Shpilberg, national director of information technology consulting for Ernst & Young in New York. "It is a transformation of people and process and technology. But they wrongly think technology transformation can be dictated."

New Metrics

The focus on customer satisfaction has produced another striking trend: new metrics for justifying IT. Some have pitched upfront, formal justification almost completely. "You can chew up a lot of time making ROI analysis," Anderson says. "You just reach a point where you are chasing your tail. Subjective judgment is more important than numbers. We simply do it."

Anderson, a 42-year company veteran, says that the approach can be risky for the inexperienced. But he says companies hung up on numbers and projections can miss important opportunities.

Case in point: In the early 1980s, Safeco was one of the first independent insurance companies to extend company computers to its 4,000 agents. Some feared that telephone costs would skyrocket after deregulation. "We plowed ahead, and telecom costs have plummeted over the last five or six years," Anderson says. "If we'd made our decision based on cost, we wouldn't have done anything."

Connecticut Mutual's Scites agrees. "Some [IT spending] you just can't justify. Some things are infrastructure. It's a terrible trap."

Such bigger-picture views of technology's value are becoming more common in leading firms, Shpilberg says. "The biggest disabler of business transformation is strict return on investment analysis," he says. "If you insist on [ROI], you will never implement revenue-enhancing transformations that are based on technology."

About half of the CEOs and CFOs surveyed say they are not getting their money's worth from IS investments. IS satisfaction is down slightly from '93.

Shpilberg says the leading 10% of firms now use more sophisticated, holistic measures that, among other things, formally factor in market conditions and data gathered from customer focus groups.

Many firms fall in the middle. At Citgo, "if the project is hardware, they've got to justify the cost," Berlin says. If it's more software-oriented, new programs are evaluated on how well they will satisfy users, he adds.

Bosses More Tech-Savvy

Many new attitudes also reflect a striking new reality: Top bosses are now more comfortable than ever with technology.

Almost half of the executives surveyed participate in committees that make long-term strategic IT decisions. Many also head new "federal" style bodies that create standards and guidelines for technology units.

Yet not everyone is plugged in. Observers say CEOs are divided into two camps. "One group consists of CEOs who understand the power of the technology to achieve the corporate objective," says John P. Thomson, executive director of the Lattanze Center for executive studies in information systems at Loyola College in Baltimore and a retired CIO from McCormick & Co.

The second group, Thomson says, includes "people who don't have time to become knowledgeable about the benefits. They're treating it more in the old-line expense category."

He says this group is more likely to slash, marginalize or outsource IS. Wharton's Mittelstadt agrees. "There are those CIOs who recognize they have to provide business leadership to make IS work and those who don't understand that."

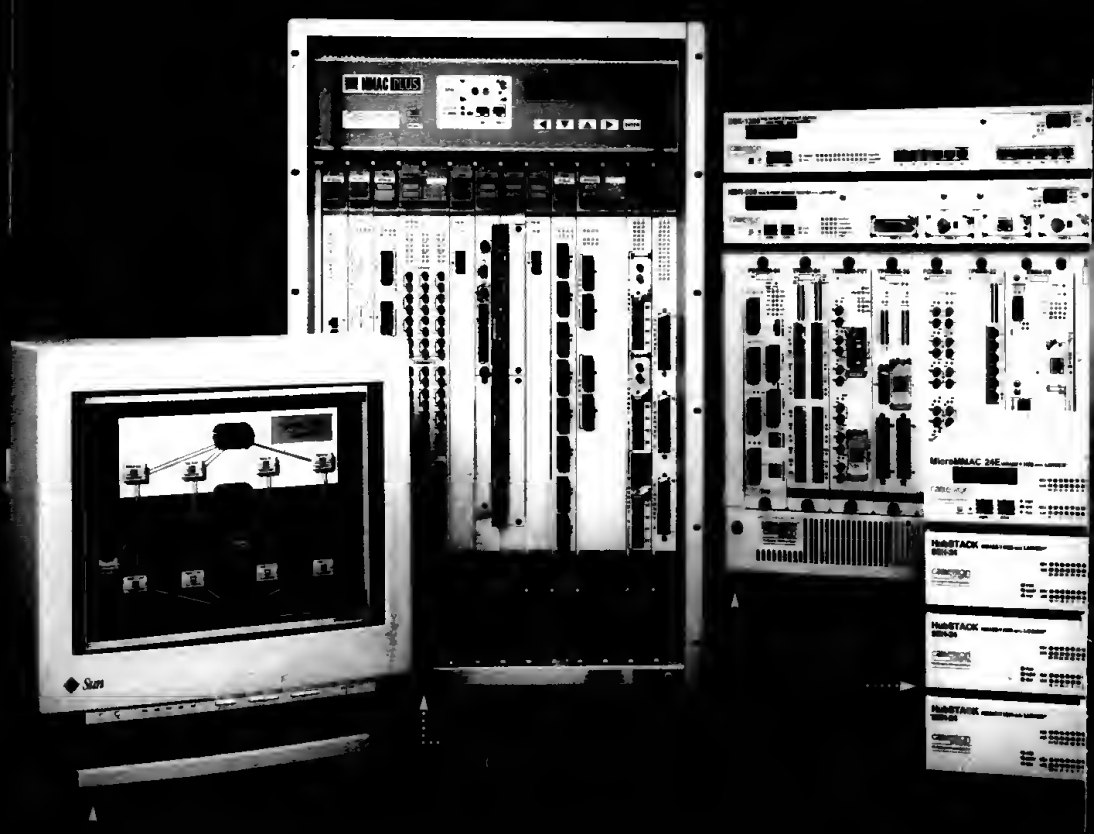
Miracle Workers Needed

As a result, bosses expect leaders to serve as visionaries, educators, problem-solvers, salespeople, competitive spies, in-house consultants, and nimble network creators to customers and suppliers.

Toro's Knight describes his ideal IS boss as possessing "credibility, flexibility and discipline; well-done architecture and systems development and implementations; good documentation and fundamentals." In many cases, executives say, nontechnical managers are a better choice. "Top management wants miracles," Loyola's Thomson says.

But even the best IT managers won't have all the answers. "If the organization is wrong, IT isn't going to fix that," Mittelstadt warns. ◆

Maglitta is a Computerworld senior editor.


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The Balancing Act

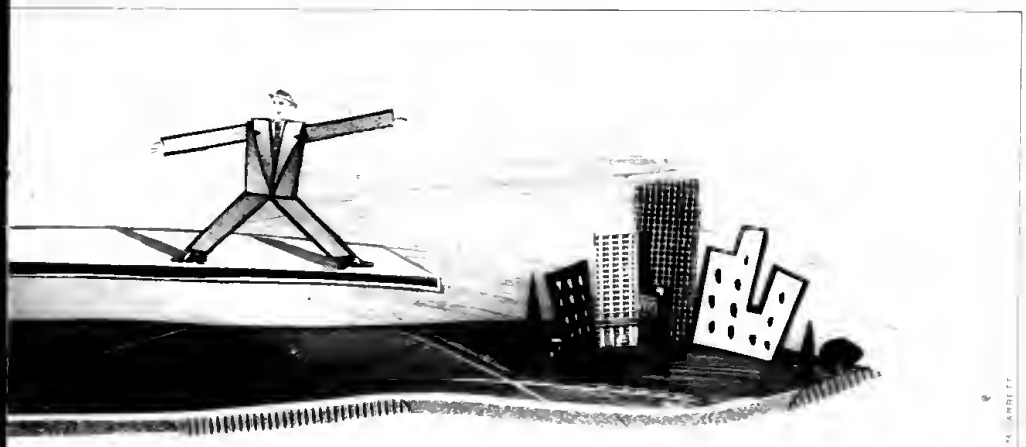
By Brian McWilliams

When Lintas Worldwide, a New York-based advertising agency, decided to computerize its Zimbabwe office four years ago, "we just boxed up some extra PCs we had here at headquarters and shipped them off to Africa," says Vince Lubrano, executive vice president and chief executive officer.

Big mistake, admits Lubrano, a participant in Computerworld's 1995 CEO/CFO survey. When the computers arrived at their destination, Lintas' local people couldn't even figure out how to power them up. Nor did they have an in-house information systems staff for support. "It turned into a real hassle. We won't make that mistake again," Lubrano says.

Lintas is not the first company to discover that a command-and-control approach to information technology management doesn't work in today's increasingly global, decentralized, nonhierarchical business environment. Many companies are grappling with the question of how to manage the information technology for optimum results – whether to use a centralized, decentralized or hybrid approach.

"This is a genuine dilemma. It scares business executives like me to death," says Richard Sim, chairman and CEO of $434 million



CEO satisfaction with IS depends on the systems architecture that's in place

Applied Power Inc. in Milwaukee.

How a company resolves the IT management dilemma depends, of course, on a number of things, such as its size, geographic scope and structure, culture and long-term business objectives. But if results from Computerworld's survey provide any guidance on the question, it could be summed up this way: When a company's IS management approach is neither fish nor fowl (neither centralized nor decentralized), its IS group is likely to be perceived as a goat.

In several key performance areas, senior business executives pursuing a "balanced" IT management strategy rated their IS groups lower than did executives at companies where centralized or decentralized control is the modus operandi.

When asked about internal customer satisfaction, the key measure of IS performance this year, just 36% of executives at balanced companies conferred the top 2 ratings of "very good" or "good" on their IS group. That lags considerably behind decentralized companies, where 53% of senior executives gave their IS group such ratings. It even trails centralized companies, whose CEOs checked in at 46%.

What's more, CEOs, chief operating officers, chief financial officers and other senior executives at balanced organizations think less highly of their top IS manager's leadership ability – the skill considered most important to success by all executives surveyed. Just 15% of executives at balanced companies say their IS managers' leadership skills are "very good." Twenty-two percent of centralized company executives give their technology manager's leadership skills the highest rating. The highest percentage (58%) to give their IS leader that rating came from decentralized companies.

> OF THE 200 SENIOR EXECUTIVES SURVEYED, 66% BELIEVE IN A BALANCE BETWEEN CENTRALIZED AND DECENTRALIZED CONTROL, DECISION MAKING AND INFORMATION TECHNOLOGY ACTIVITIES TO MAXIMIZE IT INVESTMENTS; 27% BELIEVE IN CENTRALIZED CONTROL, AND ONLY 7% BELIEVE IN DECENTRALIZED CONTROL.

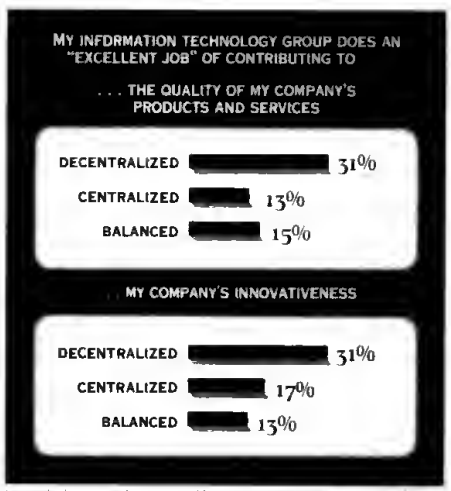
Among the believers in decentralization is Deere & Co., the $9.4 billion farm and lawn equipment manufacturer in Moline, Ill.

According to Glen Gustafson, Deere's director of business planning, the company abandoned its centralized corporate IS group one year ago and reassigned then-Chief Information Officer Ron Sonnenberg to head up Deere's operations in China. Since distributing IT management to "systems integrators" at each of its seven strategic business units, Deere's "division management is more satisfied, we're meeting deadlines better, and our costs have improved," says Gustafson, an architect of the new decentralized approach.

Deere's results are in line with those reported by other companies with decentralized IT man-

agement. In general, executives at decentralized companies say their IS people are doing a good job of producing projects and reports on time. Sixty-two percent of those surveyed said their IS group is "good" or "very good" at delivering results in a timely fashion, compared with 42% for centralized and 41% for balanced companies.

But those results come at a cost. Senior executives at decentralized companies spend more time on IT issues than do their peers who follow the centralized or balanced approach, according to the survey. A large proportion of decentralized executives surveyed say they spent 26% to 49% of their time on IT matters. CEOs at centralized companies spend between 3% and 20%, and those at balanced companies spend 5% to 25%.


MY INFORMATION TECHNOLOGY GROUP DOES AN "EXCELLENT JOB" OF CONTRIBUTING TO
. . . THE QUALITY OF MY COMPANY'S PRODUCTS AND SERVICES
DECENTRALIZED 31%
CENTRALIZED 13%
BALANCED 15%
. . . MY COMPANY'S INNOVATIVENESS
DECENTRALIZED 31%
CENTRALIZED 17%
BALANCED 13%
Source: Exclusive 1995 Computerworld CEO/CFO survey of 200 senior executives

To be sure, executives who ascribe to the decentralized approach are not completely satisfied with it. Bob Stone, vice president and CFO at Cominco Ltd., a Canadian mining and smelting company, says decentralized IT management is his only option given Cominco's geographic reach. The Vancouver, British Columbia–based company is trying to link its operations in Alaska, Canada and South America with wide-area networks. But Stone says those efforts are being slowed by uneven architectural compliance.

"We've got some businesses that are lagging behind in technology use," he says, "and that's preventing us from having a bigger impact on the company's ROI."

In striking a balance between centralization and decentralization, many executives seem to be hoping for the best of both worlds. They yearn, perhaps, for the common architecture and enterprisewide networking suggested by the centralized approach, but at the same time seek the responsiveness of the decentralized approach.

HALFWAY TO NOWHERE

This ideal balance is the goal, anyway, of executives at Astronautics Corp. of America, a $500 million Milwaukee–based aerospace company. According to Mike Sargent, vice president of finance, the company has been an IBM mainframe user for years and has historically operated with a centralized IT management strategy. But that's changing, now that geographically dispersed users want PCs for analyzing manufacturing and accounting data.

"We're trying to merge the two worlds" by offering central, mainframe–based services out of headquarters and letting users take the lead in building a PC network to make that data accessible, Sargent says. "Hopefully, it will come together soon and we'll get the strong points of each approach, not the weaknesses," he says.

For some companies, the balanced approach may be seen as the best choice in a time of technological and organizational transition – a sort of wayside stop on the road from a centralized to a decentralized IT strategy, or vice versa.

Applied Power, a highly decentralized company with 40% of its business overseas, is one example. "In the past, I had always been suspicious of a master solution. I saw decentralization as a way of diversifying risk," Sim says.

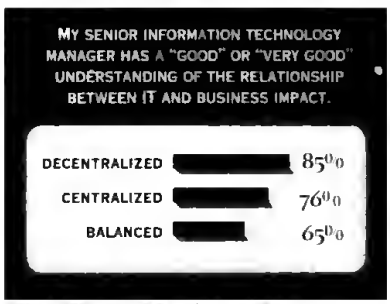
As a result, the company ended up with six business units, each doing pretty much its own thing. Some technology experiments were big gainers, others were flops. Overall, however, the technology portfolio underperformed according to Sim's expectations.

Today, Sim wants to better link those businesses to share engineering, production, inventory and customer data. IT can provide the solution, he says, but not until the company has an information architecture in place. The company hired its first CIO a few months ago to head up that effort. "We're definitely moving toward a more centralized approach, but where we'll end up I'm not sure," Sim says.

Similarly, Lintas, with offices in 60 countries, and each a separate profit center, historically allowed local technology decision-making, according to Lubrano. But to achieve the information sharing necessary to meet client requirements, "we felt we needed central

objectives for where we were going as a system," he adds.

Not that headquarters had to force centralized control on users. Operations people were asking for more direction. They wanted someone to be put in charge," Tubrano says. A year ago, Lintas hired its first worldwide IS manager, Jim Mazerelli.



Source: Computerworld CEO/CFO survey of 200 senior executives

COMMERCIAL CENTRAL

John Slater, CEO of Haverty Furniture, Inc., in Atlanta, says his company tried balancing centralized and decentralized IT control, but it resulted in "a mish-mash that satisfied no one."

Slater says the balanced strategy really crashed and burned when Haverty, a furniture retailer with 91 stores throughout the South with projected 1995 sales of $370 million, attempted to develop an ambitious store-level sales and inventory system a few years back. "We tried to accommodate everybody and ended up with a system that was too complex to understand," he says.

To rescue the project, Slater appointed a new IS director and gave him total control of IT. Four months later, Haverty had a working system that Slater says is "as good as any in retail today" and includes an instant credit feature that enables the retailer to do on-line credit checks while the customer waits. Slater says such a system would not have been possible with decentralized strategy.

Tom Grigsby, executive vice president and CEO at IBP, Inc., says the centralized approach aligns best with operations at the $12 billion meat processor. IBP has 18 "manufacturing" locations across the Midwest, yet everything is controlled from the Dakota City, Neb., headquarters, Grigsby adds.

MANAGEMENT'S ROLE

Given the disappointing reviews of the balanced IT management approach, should executives at such organizations rethink their strategy? Is it better to be fish or fowl than to be an amorphous hybrid that can neither swim nor fly?

Applied Power's Sim says no. He says managers should resist what he calls "the human tendency to resolve dilemmas by choosing one extreme or another."

Instead, Sim says, executives should "fashion, through judgment, a trade-off between centralization and decentralization and come up with something that's near optimum. There's something dissatisfying about that, but finding what makes sense for you in your situation is the added value of management." ◆

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A Place at the Table

Executives at companies who follow a centralized information technology management strategy are more likely to give their senior IS manager a place at the corporate table, according to *Computerworld*'s exclusive 1995 CEO/CFO survey.

Fifty-nine percent of executives at centralized companies say their senior IS manager is on the committee that reviews, approves and sets corporate business strategy. Only 38% of executives at decentralized companies say that their IS leaders are similarly involved in setting business strategy, while 48% of executives from balanced companies say their top IS person has a spot at the senior table.

Involving IS managers in corporate direction-setting seems to pay off for centralized companies. Ninety-eight percent say their IT plans are "well" or "somewhat" integrated with business unit plans, compared with 85% for decentralized companies and 89% for balanced companies.

But that seat at the senior table has proven a hot one for centralized IS managers. Fully 19% of top executives at centralized companies say they have had three or more IS managers in the past five years. Only 37% have kept the same CIO for the past five years, compared with 62% of senior executives at decentralized companies.



With accountability, comes vulnerability.

Making the Break

Many IS execs find themselves locked out of top management spots. Here's how a few have made the transition

By H. Garrett Dobonuq

At first glance, it would seem that few corporate executives are better positioned for big league advancement than the experienced IS manager. Highly analytical by nature and skilled at breaking challenges into manageable components, such managers can bring to top level positions the kinds of talents that are becoming "more important as companies move from a gut-level management style to a more rational business approach," says Edward J. Novak, a former insurance industry chief information officer who is now a partner at CSC I/T Management Consulting in New York.

ONLY 19% OF SENIOR EXECUTIVES SURVEYED HAVE EVER HELD AN IT POSITION

As companies increase their investments in information technology, which now accounts for half of all capital expenditures, by one estimate, more responsibility falls on the CIO, says Novak. "Their visibility is being raised."

The reality is what amounts to an unspoken business rule: CIOs and other IS executives are rarely tapped for higher level management spots, such as chief executive officer, chief operating officer or chief financial officer.

One big reason: Companies generally seek out "superstars" (either internally or externally) to fill top positions, and "it's hard to look like a superstar in IS," Novak explains.

It seems that top managers themselves agree with that assessment. In this year's *Computerworld* survey of 200 CEOs, CEOs and other senior managers, only 2% indicated that they would consider their IS managers for a CEO spot. Four percent would consider their IS manager for COO, and 6% regarded IS as fodder for a vice president's spot. Nearly half the respondents replied that they wouldn't promote their IS managers to any other position.

The result: a sort of glass ceiling for CIOs and other IS professionals. And the barrier is often self-imposed. "A lot of CIOs don't have or don't exhibit the skills needed to run a business, help create a vision and sell ideas to the company and its customers," says a former IS manager who made the transition to senior management. "They think their primary job is to write software and build systems."

To be fair, the typical IS manager is burdened with some unique baggage. For one thing, "IT hasn't traditionally been a core unit in most companies," says Jack Rockart, director of the Center for IS Research at MIT's Sloan School of Management in Cambridge, Mass. "IT people don't usually meet customers."

Lacking that mystical affiliation, CIOs are often overlooked in the



PATRICIA BARRY LEVY



REED HORN

search for candidates for a top slot. "Companies tend to look for someone who really knows marketing or finance or R&D," Rockart says.

Moreover, few CIOs have bottom-line accountability, CSC's Novak adds. As a result, "There are no good measurements to determine his or her performance."

But IS executives must take much of the blame for their limited career options, claims Bob Easterly, senior vice president and COO at First Federal Bank of Colorado in Lakewood, Colo. "They get wrapped up in 'We can't do that' or 'It's too expensive,' " he says. "They're good at talking to machines, but they have no real management skills. Maybe they never got good training."

Lucky Break

A former human resources professional, Easterly acknowledges that some career advances are purely serendipitous. Having spent several years in data management (including a stint as IS manager), he responded late last year to an ad for his current slot. "I never consciously decided to leave IS. It was a lucky break," he says.

Lucky breaks, however, usually come to those who are best prepared to seize the opportunity. Convinced that generalists have the best shot at top slots, for example, Easterly had made it a point to seek out various high-profile, non-IS positions during his career that brought him into frequent contact with senior executives.

He also shunned the trap that snares so many IS professionals. "In general, the big-iron guys believed that computers were sacrosanct," he says. "There was all that mystique."

Much of that mystique was wiped out by the PC during the 1980s. IS managers were tagged as "computer experts," potentially locking them out of other positions.

The Changing Role of IS

So how do ambitious IS executives position themselves for promotion? First, you must recognize and respond to the changing role of IS in the corporate environment. Rather than concentrating on building computer technology empires, "you need to be a good bridge between technology and business," says Stewart Owens, COO of Bob Evans Farms, an $800 million Columbus, Ohio–based food products and restaurant management company. One way to do that, Owens says, is to "wear a lot of hats to learn what computers can and cannot do in the decision-making process."

That's good advice, Novak says. "Most CIOs have had very limited exposure to other company functions. In fact, 99% of them spend their entire careers in IS."

But enriching your skill set doesn't necessarily entail formal tours of duty outside IS. Barry W. Sullivan, corporate vice president at Electronic Data Systems Corp. in Plano, Texas, suggests taking steps to understand your company's business and your customers' businesses and interpreting the role of technology in bringing the two together.

LEFT OUT IN THE COLD

"WHAT FUTURE POSITION WOULD YOU CONSIDER APPOINTING YOUR SENIOR IT MANAGER?"

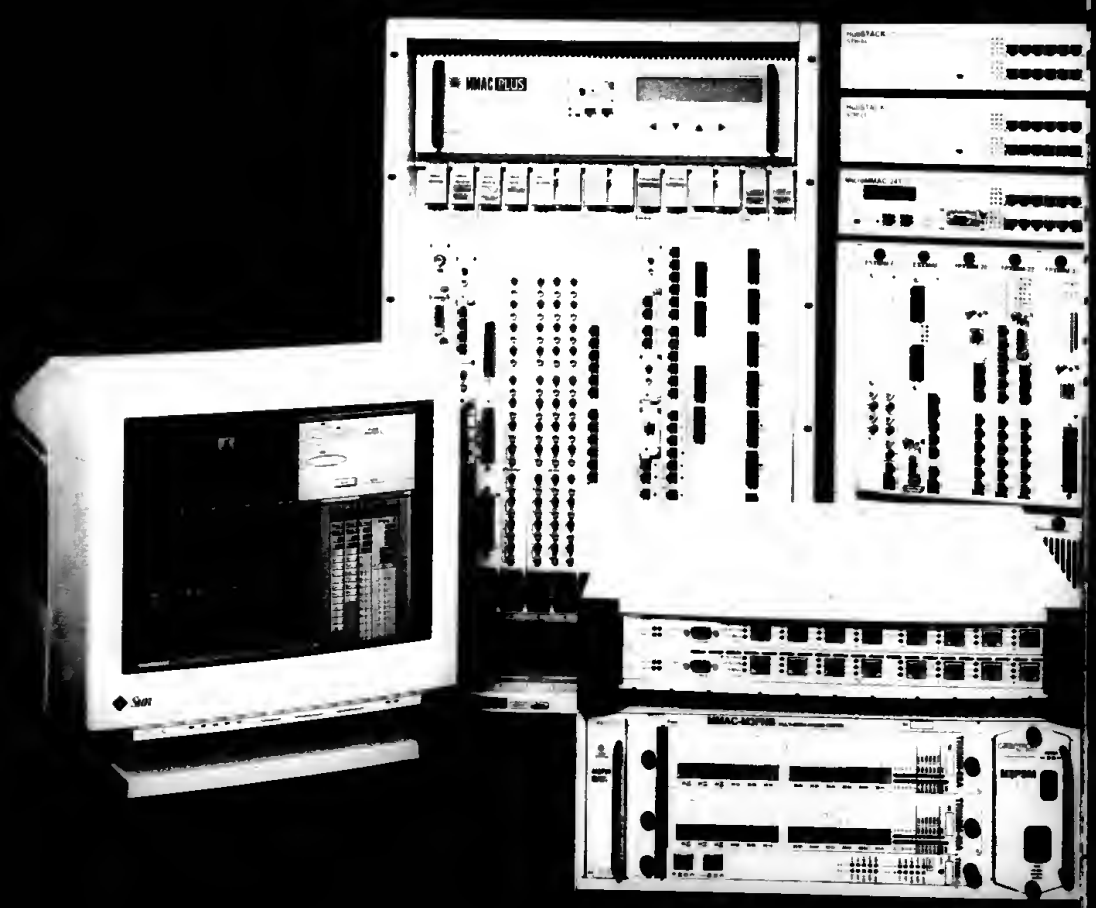
CEO	2%
COO	4%
CFO	48%
NONE	48%
DON'T KNOW	14%

Source: Computerworld 1995 CEO/CFO Survey of 200 senior executives

A 24-year veteran of EDS, Sullivan had filled several IS management roles at the company by 1987. Although supported by the company's culture, which encourages workers to develop both technical and business skills, he set out to expand his skills on his own. The investment paid off when he was asked to head a product management team. The moral: "You need to take personal responsibility for your career." ◆

Computerworld CEO/CFO Editorial Staff: Editor: Bruce Rayner; Managing Editor: Joyce Chutchian-Ferranti, Research Director: Bob Fink, Designer: Janell Genovese; Copy Editor: Amy Malloy. For questions, comments or more information, contact Bruce Rayner: (508) 820-8195 or brayner@cw.com.

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DG revamps DataGenie

Data General Corp.'s latest version of DataGenie II includes enhanced processing capabilities with an open architecture that simplifies applications use. The lightweight, handheld device lets mobile users access the host computer either directly or through a telephone link. The various models of the DataGenie II range in price from $795 to $1,700.

D.C. gets wireless network

Metricom, Inc. in Los Gatos, Calif., and **PepData, Inc.**, a subsidiary of Potomac Electric Power Co. in Washington, will join forces to set in motion a wireless network to provide data communications services in the Washington area. As part of the agreement, Metricom will provide its Ricochet wireless data communications service to residential, business and government users by installing a network of pole-top radios on street lights, power poles and buildings. The Ricochet service supports laptops, personal digital assistants and desktop computers and is the fastest wireless service available. The joint venture could benefit 4 million potential customers in the area.

Firms unveil wireless program

TelSoft Mobile Data Group, Service Systems International Ltd. in Vancouver, British Columbia, and **RAM Mobile Data USA** in Woodbridge, N.J., have announced an end-to-end wireless field service program called ServePac. The program bundles application and communications software, network services and regional technical support. The ServePac bundle, delivered through the reseller channels of TelSoft and RAM Mobile Data, will also provide training and technical support.



Swissair gets telecom system

Swissair passengers will now be able to reach out and touch someone, thanks to an agreement with **Claircom International**, a subsidiary of AT&T Wireless Services. Claircom said it has a letter of intent from Swissair to install its telecommunications system on Swissair's new fleet of Airbus A319/320/321 aircraft. Passenger communications will be provided by worldwide satellite service.

Motorola offers PCS

Motorola, Inc.'s Pan American Market Division in Schaumburg, Ill., has announced new offerings for personal communications services (PCS) operators, including infrastructure equipment, site acquisition and preparation. Motorola's Genesis Precision Constructed Services were designed to help PCS operators with such tasks as site planning, lease agreements, microwave band clearing and equipment installation.

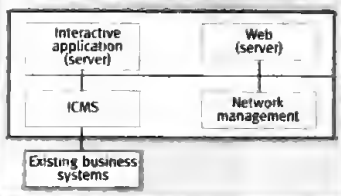
Help arrives for linking corporate apps, Internet

By Ellis Booker

"Pay no attention to the man behind the curtain!" The Wizard of Oz's plea could well apply to many an information systems director now building a corporate Internet site.

Web business

Producing a transactional storefront on the World-Wide Web is difficult, but the Interactive Commerce Management System (ICMS) from BroadVision, Inc. can make network connections more direct



For while it is surprisingly easy to produce a slick informational presence on the Internet, turning a World-Wide Web home page into a transactional storefront is much trickier. As Oz knew well, real power involves more than smoke and mirrors.

In the case of the Web, the issue has been the difficulty of linking a Web front end to existing core applications such as billing, customer support and inventory. Such links can be built in-house, of course, but require a custom programming effort and knowledge of the Common Gateway Interface (CGI), a set of application programming interfaces for linking a Hypertext Transport Protocol Web server to other systems (see box at right).

At least three firms have announced plans for packaged solutions for the back-end part of electronic commerce. These include BroadVision, Inc. in Los Altos, Calif.; Kenan Technologies, the Cambridge, Mass.-based division of Kenan Systems Corp.; and FourGen Software, Inc. in Seattle.

However, not all users believe that CGI is an unworkable solution or that shrink-wrapped back ends are preferable.

"While there are some clunky aspects to CGI programs, overall, they are quite nice," said Larry Craton, a systems programmer at Insight Direct, Inc., a computer mail-order reseller in Tempe, Ariz., and one of the first to set up a transactional Web site. Craton said he spent about three hours building the CGI script, adding that "the harder part is the interface logic with an application."

Craton also questioned the value of shrink-wrapped back ends for on-line stores. "To get maximum performance, flexibility and integration with other software almost always requires a personal, custom touch," he said.

Nevertheless, BroadVision has introduced an ambitious software architecture called Interactive Commerce Management System (ICMS). Market trials for BroadVision's first ICMS product, dubbed CoMarket ICMS, are slated for the fourth quarter.

"We can support commerce across all major distribution channels," said Pehong Chen, company president and founder. The channels will include Internet, consumer on-line services, broadband cable and direct broadcast satellite interactive TV.

BroadVision's approach is based on a three-tier system that is independent of user interface, telecommunications network (broadband or narrowband), server platform and content-authoring environment.

Analysts said this approach is very promising, "provided it works as specified and gets out on time," said Stan Lepeak, a senior analyst at Meta Group, Inc. in Stamford, Conn.

New target

Along with BroadVision last month, billing systems provider Kenan Technologies announced that its Arbor/BP billing system would now be aimed at electronic commerce applications.

As part of its announcement, Kenan said Delphi Internet Services in New York had picked Arbor/BP for its Web-based information service.

In addition to a core billing platform, Kenan intends to deliver a decision-support system for analyzing billing and customer activity records.

A final entrant in the electronic commerce management market is FourGen Software. FourGen's Electronic Marketplace Order Server can work with the FourGen Fulfillment server or with legacy fulfillment systems.

Analysts note that these next-generation billing and customer management systems will be highly scalable and optimized for distributed networks. These systems will likely find their first homes among on-line service companies such as Delphi Internet Services, which have the most immediate need of such solutions.

The Common Gateway Interface

The CGI allows users to run external programs, or gateways, under an information server. Currently, the supported information servers are Hypertext Transport Protocol (HTTP) servers.

A CGI today is typically used to handle an on-line SQL query. A user enters a Web page and fills out a Hypertext Markup Language (HTML) form. The CGI script takes this input, parses it into a SQL call and sends it to a resource such as a relational database. Another CGI script can then format the output of the database query as an HTML document and pass it along to the user for viewing through the HTML browser.

CGI scripts can be written in many languages, the two most popular of which are C++ and Perl. Another plus is that there are lots of prewritten scripts on the Internet waiting to be downloaded. The National Center for Supercomputing Applications at the University of Illinois is one place to look for these scripts (http://hoohoo.ncsa.uiuc.edu/cgi/intro.html).

Two other sources of information include the CGI Programmer's Reference (http://www.halcyon.com/hedlund/cgi-faq/) and the EIT Webmaster's Starter Kit from Enterprise Integration Technologies Corp. (http://wsk.eit.com/wsk/doc/), which includes an alternative set of CGI routines for simplifying creation of CGI programs. —*Ellis Booker*

Security

CONTINUED FROM PAGE 61

gering an alarm or dialing a pager.

Intruder Alert beta tester Ken Shirane, a systems programmer at Rocky Mountain Health Care Corp. in Denver, said it is "comforting" to know that his system is being monitored even when he is not present. "It is my responsibility to make sure that my network is 100% secure from outside infiltration, but it is impossible for me to continuously scan all systems looking for security violations," he said.

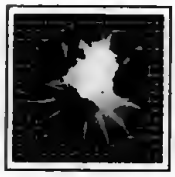
As more evidence that the mainframe is not yet dead, IBM announced a new release of its mainframe security product, Resource Access Control Facility (RACF), with many enhancements. Chief among them is the capability to update multiple, remote RACF databases with a single command without logging on to the remote systems. This is an aid to keep remote databases synchronized, IBM said.

Despite the security products that were unveiled at the conference, none seemed likely to help Miami-based Ryder System, Inc., where there are two PCs for every employee.

"We lose an average of one laptop per day," said Steve Goodson, group manager for MIS controls.

Timothy L. Trimble

The highway to client/server info



For IS professionals, the Internet offers a lot more than exchanging jokes about faulty Pentium chips and browsing for want ads. It can also be the best place to learn about new technology.

With that in mind, here is a quick reference to Internet resources for one of the most vexing technology combinations we face — client/server.

There are three primary methods for gathering information off the Internet:

- Participating in discussion groups.
- Retrieving files from file transfer protocol (FTP) sites.
- Browsing World-Wide Web pages (surfing the Internet).

DISCUSSION GROUPS

A discussion group (Usenet newsgroup) is basically a message bulletin board for a specific topic. It is a great place to find out what others are doing and what kind of problems they are encountering. The topics of conversation usually revolve around what problems are occurring and how they can be fixed. There is also a lot of speculative talk and "have you tried" type of discussion.

Usually this is the type of stuff that sends most sales reps fleeing. If you can't find a message that answers your questions, you can post a message to the discussion group, and someone will respond, sometimes within a few hours.

An Internet "news reader" will allow you to participate in a discussion group. However, proceed with caution. Some highly active discussion groups have new message postings that number in the hundreds per day.

Some of the hot client/server discussion groups include the following:

comp.client-server: General discussions on client/server. Easily one of the most active computer-related discussion groups on the Internet.

comp.databases.informix: Topics related to the use of Informix.

comp.databases.oracle: Topics related to the use of Oracle.

comp.databases.sybase: Topics related to the use of Sybase.

comp.databases.theory: Theoretical discussions on database design.

comp.protocols.tcp-ip: Topics related to TCP/IP communications.

comp.sys.dec: Topics related to the use of Digital systems.

comp.sys.hp: Topics related to the use of Hewlett-Packard systems.

comp.sys.sun.hardware: Topics related to the use of Sun hardware.

FTP SITES

FTP sites on the Internet are file servers that permit others to drop in, take a look around and download/upload anything of interest. It is very similar to the bulletin board service concept.

The key to finding good files is knowing the FTP addresses to the good systems. Many times, the FTP addresses are mentioned in the discussion groups. An FTP program will allow you to establish a link to an Internet FTP site and, once attached, you will be able to browse and/or download files from the site.

Here are some key FTP sites for client/server files and information:

ftp.gupta.com: Files related to Gupta's SQL Windows, SQLBase and more.

ftp.sgi.com: Silicon Graphics file site.

ftp.oracle.com: Oracle file site. This also currently contains an evaluation copy of Oracle Developer/2000 for Windows for free downloading.

ftp.dec.com: Digital's file site.

ftp.ms.com: What FTP address list would be complete without Microsoft's site?

WEB PAGES

This is clearly the most popular method of accessing the Internet. By getting on to the World-Wide Web, hyperlinks and graphics can lead you almost anywhere.

With Prodigy, American Online and CompuServe hopping onboard the Web, anyone with a computer and modem will have access to these hot client/server pages:

http://www.tandem.com/new/letter/paranews2/csfuture.html: This site has a great discussion of the future of client/server.

http://www.onr.com/clients.html: This is the client/server coffeehouse. A good place to browse while sipping a hot cup of java.

http://dcewww.cit.gmich.edu:8080/cse.html: This page discusses client/server exchange by IBM and the University of Michigan.

http://www.ib.ox.ac.uk/internet/news/faq/archive/client-server-faq.html: This is the spot to get a list of questions and answers to "What is client/server?"

http://www.sybase.com/: The Sybase Web page.

http://www.microsoft.com/pages/bussys/sql/sql10000.html: Microsoft's Web page on SQL Server.

http://www.dec.com/: Digital's Web page.

http://www.sun.com/: Sun's Web page.

http://www.hp.com/: Hewlett-Packard's Web page.

http://www.ibm.com/: IBM's Web page.

http://www.sgi.com/: Silicon Graphic's Web page.

This list is just a sampling of the amount of information that is available via the Internet. Much more can be found by "surfing" via the use of the various search engines available on the Internet.

(For those brave Internet surfers: The first person to send me the Web page address for the Trojan Room Coffee Machine will receive a free autographed copy of *Adventures in Flight Simulator* from Microsoft Press.)

Trimble is a senior business analyst at Hunter Industries in San Marcos, Calif. He can be reached via the Internet at ttrimble@powergrid.electricit.com.

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Briefs

Fannie Mae gets on the Web

Federal National Mortgage Association, a major source of home mortgage funds, has opened a home page on the World-Wide Web. The Fannie Mae home page, which provides information about the company, its operations and the home mortgage market, can be reached at http://www.fanniemae.com.

Call up Nynex home page

Nynex Information Resources Co. in Middleton, Mass., recently put a version of its Interactive Yellow Pages, first launched on Prodigy in January, on the Web. The free service has 2.1 million business listings and includes hot links to more than 400 advertising Web sites. The service is located at http://www.vt.com.fr/nynex.

Fine Time to go on-line

Time, Inc. and Time Warner Cable have joined to offer a service using high-speed connections to provide on-line and Internet services for PCs. Subscribers to the new service will have access to a wide range of data, including news services supplied by Time Warner Cable's fiber-optic and coaxial networks. As part of the new service, customers will use a graphical interface to access Time Warner Cable's Pathfinder, the Web and other on-line services. The service will be delivered through a cable modem that will move more information than is currently allowed with phone lines, according to the two companies.

Airline flies on the 'net

Fort Worth, Texas-based Sabre Computer Services, Inc., the information systems division of American Airlines, established a home page on the Web last month. This first step onto the Internet describes services, seating and other information to browsers. Later this year, information will be available across the Internet from the Sabre database, followed by an interactive reservation capability, according to Terry Jones, president of the group.

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ATM speeds Vancouver hospital's diagnoses

By Network World Canada

A Vancouver, British Columbia, hospital is turning to Asynchronous Transfer Mode (ATM) technology to link researchers and doctors across the province and speed up the process of diagnosing patients suffering from lung disease.

St. Paul's Hospital, a teaching hospital at the University of British Columbia, is using an ATM backbone network to connect its pulmonary research laboratory with doctors outside the hospital.

The network allows the two groups to compare test results and diagnose patients quicker, said Dr. Barry Wiggs, a researcher who administers the network.

A Newbridge Networks, Inc. switch located in the hospital's basement links the pulmonary research laboratory with the Research Networking Association of British Columbia (Rnet), a 140M bit/sec. ATM backbone that connects various commercial, medical and university research teams.

The switch links a Silicon Graphics, Inc. Indy workstation in Wiggs' office to the ATM backbone network via a 100M bit/sec. Ethernet Transparent Asynchronous Transmitter/Receiver Interface (TAXI). The hospital has been running the network since October. Wiggs uses the network to compare research with colleagues at other universities and hospitals.

But in the near future, when the logistics are worked out, Wiggs said he expects researchers in the pulmonary research laboratory and doctors outside the hospital to view slides and X-rays, trade data and compare findings on-line.



Typically, patients with suspected lung disease receive computerized tomography (CT scan) or magnetic resonance imaging (MRI) tests, which provide doctors with an image of the lungs, Wiggs said. Doctors may also obtain tissue samples.

The tissue samples are sent to research laboratories such as the one at St. Paul's. Researchers then telephone or mail test results back to the physician to compare with the CT scan or MRI.

Bandwidth difficulties

Bandwidth demands are one of the greatest challenges in using the network. Wiggs has the task of finding a way to improve the resolution of images so diagnostic qualities are not lost when they are transmitted electronically.

"We've been looking at detailed imaging work, like CT and MRI, and trying to figure out if can we get more information out of the image than is traditionally gathered," Wiggs said.

In some instances, Wiggs has mounted a video camera on the head of a light microscope, so the image of the specimen on the slide can be transmitted over the 100M bit/sec. TAXI to other sites.

"We can have a pathologist at one end talking to a physician at the other end. They could discuss what they are seeing on the microscope and compare it to the [CT scan or MRI] image," Wiggs said.

Using this method, doctors at remote locations see a live video, but the image quality is sometimes only slightly better than a television picture, and for some diagnoses, that is not good enough, he said.

And while black-and-white CT scan and MRI images do not require much bandwidth, video images require as much as 85M bit/sec. if they are not compressed.

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To receive the complete Arctco story, call Btrieve Technologies, winner of the 1995 RealWare Award at DB/Expo. 800-BTRIEVE, or (512) 794-1719, CompuServe [GO BTRIEVE].

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Raymond Koukari, Jr., IS Director, ARCTCO, INC.

[redacted]

Hewlett-Packard Co. has announced Windows-based ProbeView Reporter and Unix-based NetMetrix Reporter.

According to the Palo Alto, Calif., company, ProbeView Reporter and NetMetrix Reporter are reporting tools that gather and present network management data from Remote Monitoring agents. Each product helps automate the tasks of diagnosing problems, optimizing performance and planning changes in distributed network environments.

Pricing for ProbeView Reporter starts at $2,395. NetMetrix Reporter starts at $4,995.

▶ *Hewlett-Packard*
(415) 857-1501

Network Integrity, Inc. has introduced LANtegrity servers, emergency standby servers for Novell, Inc. NetWare networks.

According to the Marlboro, Mass., company, a LANtegrity server can immediately replace any failed server on a network and protect more than 1,000 users on multiple NetWare servers. It continuously monitors all protected servers and stands in for any server within 15 seconds of detecting a failure.

The LANtegrity server takes over for a failed server without requiring a server reboot or any software or modifications at the client workstation. It also does not require duplication of disk storage.

LANtegrity servers run NetWare 4.x and can protect any combination of NetWare 3.x or NetWare 4.x servers.

Pricing for LANtegrity servers starts at $4,950 and includes a license for 100 users.

▶ *Network Integrity*
(508) 460-6670

Auspex Systems, Inc. has announced the NS 7000/100 NetServer, an entry-level Unix-based Network File System.

According to the Santa Clara, Calif., company, the NS 7000/100 NetServer can support up to 90G bytes of files stored on disk drives. It is based on a 55-MHz Ross Technology, Inc. HyperSPARC RISC processor and supports two Ethernet LANs and up to 50 end users accessing the data.

Pricing for the NS 7000/100 NetServer starts at $50,000.

▶ *Auspex Systems*
(408) 492-0900

Network Specialists, Inc. has introduced Double-Take, a software package that supports data backup and replications for Novell, Inc.'s NetWare and Microsoft Corp.'s Windows NT LANs.

According to the Lyndhurst, N.J., company, Double-Take supports backup of open files and synchronizes data between NetWare 3.x and 4.x servers.

Pricing for Double-Take starts at $375 for a five-user license.

▶ *Network Specialists*
(201) 804-8400

Target Systems Corp. has introduced Target WebLink, a call-tracking utility that lets organizations provide customer service through the World-Wide Web.

According to the Marlboro, Mass., company, Target WebLink includes tools for creating a home page and lets users establish a direct link between the page and a support center. Target WebLink also features customizable form and field interfaces.

Target WebLink can run on any client supporting Netscape or Mosaic.

Pricing for Target WebLink starts at $1,495.

▶ *Target Systems*
(508) 460-9206

Network Translation, Inc. has announced IPX Connect, an Internet server supporting Novell, Inc.'s IPX networks.

According to the Palo Alto, Calif., company, IPX Connect provides desktop users on Novell's IPX networks with Internet access without TCP/IP on every desktop.

It includes firewall features that provide filtering for network protection and security.

IPX Connect has a single global configuration setup, eliminating the individual updating of each PC. It requires no conventional memory.

IPX Connect costs $14,995.

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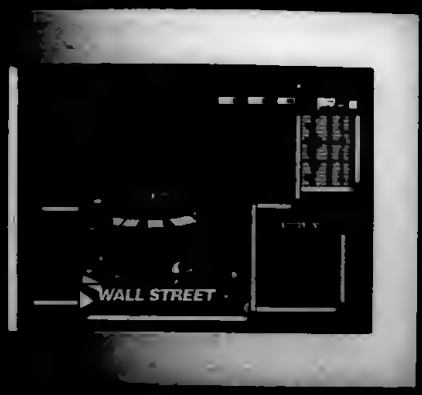
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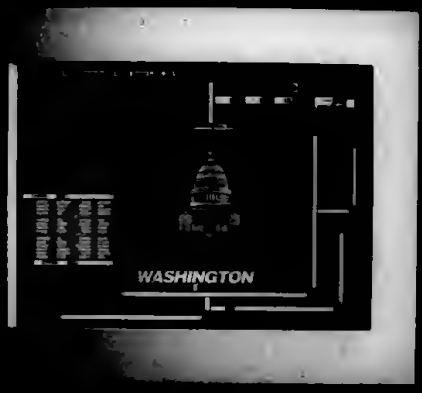
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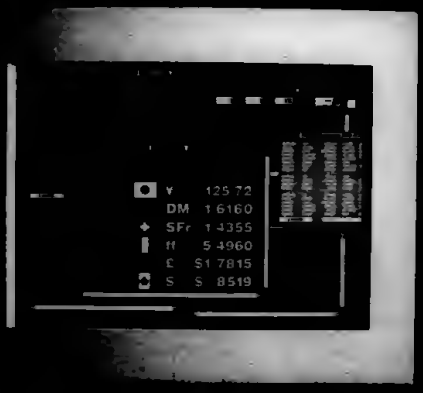
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American Airlines copes by consolidating

Company turns to Sabre Computer Services to help reduce floor space

By Patrick Dryden
TULSA, OKLA.

Once past the retina scanner, blast doors and half a dozen checkpoints, Terry Jones threads his way through myriad mainframes and 10T bytes of stored data. Here, to the heart of American Airlines and a global travel reservations network, the president of Sabre Computer Services points to one of his information technology group's latest accomplishments — floor space.

That clearing in the 57,000-sq.-ft. underground data center is the result of upgrades to higher-density processors and disk units. Drive arrays, robotic tape silos and optical storage also contributed to the better utilization of space.

Keeping up

"Airfares don't make money like they used to, yet computing and communication demands just keep growing," Jones said. "Now we have to consolidate here in the data center and on client/server systems, where we're doing mission-critical applications for the first time."

Indeed, Sabre expects to indefinitely prolong the life of its $34 million data center, which opened in 1986 with little room for expansion. To do this, Sabre has shifted to more powerful, air-cooled CMOS and parallel-processor mainframes that save space and energy. It has also shifted a dozen applications that used to run on mainframes in the data center onto Unix workstations and other machines located in the business units.

Six robotic tape silos helped reduce space and staff. Other storage technologies that promise to help include RAID to replace mirrored disks, hierarchical storage management to migrate old data off the active disks and optical discs to keep archived data accessible without tape mounts.



Sabre President Terry Jones *says the new setup allows the airline's reservations system to handle 4,000 messages per second during airfare wars*

"Since our big growth started in 1982, we have always been running into constraints, ranging from the number of digits we could handle in an entry field to the size of the data center," said Scott Nason, vice president of operations planning and performance at American Airlines.

As the major user of the flight operations system and a significant user of the reservations system, Nason has high demands for reliability, quick fixes and fast access that echo those of any information systems client. But he is more than a typical user.

"We're unable to run the airline for more than a few minutes without Sabre Computer Services," Nason said.

Because his operations cannot survive without information services, Nason must be sensitive to cost. So he seeks cheaper ways to get the information his group needs.

Innovative methods

For example, one project involved shifting a processor-intensive application out of the data center to streamline access and curtail the need for additional mainframe power in the Tulsa bunker. Nason's group now calculates crew schedules on Unix servers and workstations at American Airlines' headquarters located in Fort Worth, Texas.

Nason would not specify how much money this move has saved his group.

Overall, Sabre Computer Services was able to convert enough space to offices that it could eliminate a leased office building and, consequently, all of those operating expenses.

Hold the line

Since March 1992, Sabre Computer Services has reduced the space requirements in its Tulsa data center by 50% per gigabyte of storage and 70% per MIPS of processing. During the same period, however, the group doubled the capacity of storage and processing power, using nearly the same number of physical units. Without consolidation, current processor and storage capacity would fill an entire football field. By taking advantage of new technology, they have held expansion to the 50-yard line.

Make way for improved price/performance

Convex unveils SPP1200, plans yearly upgrades

By Michael Goldberg

With an upgrade to its scalable supercomputer, Convex Computer Corp. said it is trying to do for large systems what desktop users have come to expect: near-annual improvements in price/performance.

It is a strategy that users say will benefit them and analysts say is vital to the competitive position and long-term viability of Convex, based in Richardson, Texas.

Unveiled last week, the Exemplar SPP1200, a parallel processing system that scales up to 128 processors, is based on Hewlett-Packard Co.'s PA-RISC 7200 processor and runs about 35% faster than predecessor SPP1000, the company said. Both Convex and Palo Alto, Calif.-based HP will sell the system, which costs from $160,000 for a two-CPU system to $8 million for a full-blown 128-processor model.

Robert J. Paluck, chairman and chief executive officer of Convex, said the SPP1200, coming one year after the previous Exemplar model, reflects a commitment to show a flow of hardware improvements for users accustomed to frequent advances to desktop applications.

"It's important for Convex because we're able to demonstrate for the first time that supercomputing is on the same price/performance and development schedules as is occurring on the desktop," Paluck said.

Not far behind

Convex officials said the company plans to develop upgrades that closely follow the progress of HP's PA-RISC processors while adding its own proprietary improvements. With the SPP1200, for example, Convex introduced an expanded memory bandwidth. Paul Bemis, business manager for HP's technical server group in Chelmsford, Mass., said HP expects to release a new PA-RISC processor every 15 months.



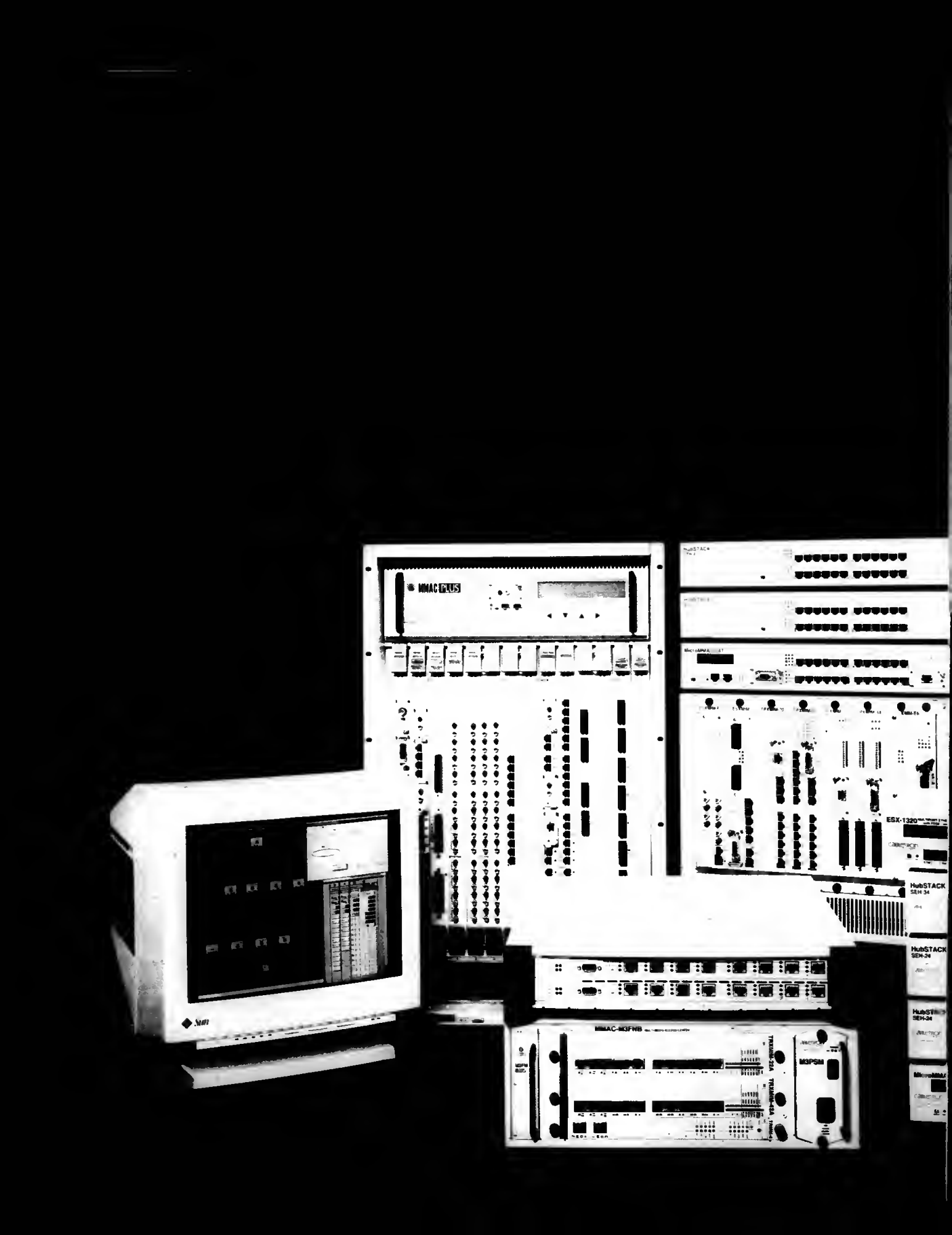
Gary Smaby, president of Smaby Group, Inc. in Minneapolis, said Convex needs to follow this strategy to keep pace with competitors' products such as IBM's SP2, Silicon Graphics, Inc.'s Power Challenge series, Cray Research, Inc. supercomputers and even Digital Equipment Corp.'s Alpha servers.

"Users have come to expect that the system performance will stay on the same curve as the prevailing price/performance improvements that take place in the industry in general," Smaby said.

Rich Partridge, an analyst at D. H. Brown Associates in Port Chester, N.Y., said Convex's schedule of processor-based upgrades should allow the company to compete for scientific and engineering users based on its global shared memory architecture.

The University of Kentucky in Lexington next month plans to expand its 24-processor SPP1000 system to a 32-processor SPP1200 with 7G bytes of memory. The 90 computer scientists, chemists and molecular biologists who use the system will welcome the upgrade, according to senior systems programmer Trent Fraebel.

"With this serious number crunching, you can be limited by memory, data speed or by CPU [power]. This machine pretty much answers all of those," Fraebel said.

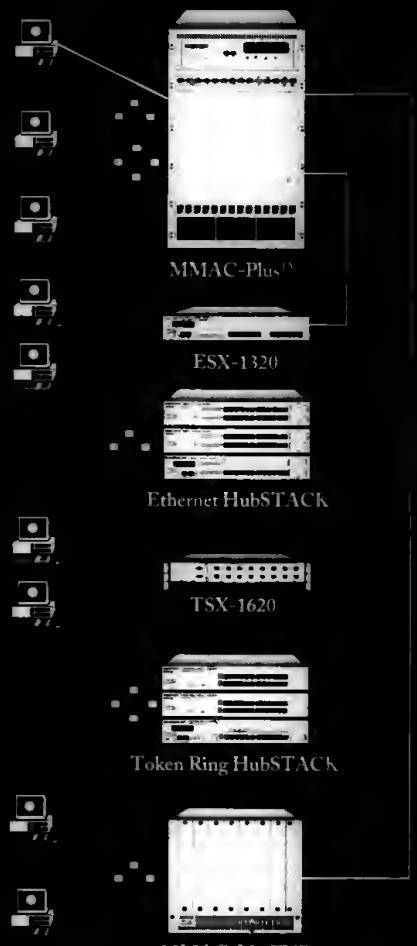

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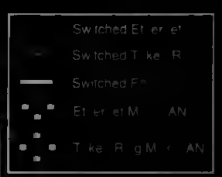
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New Zealand library gets wired

Database project allows users to access sources on-line

By Randal Jackson
AUCKLAND, NEW ZEALAND

New Zealand's National Library is working on a massively parallel database project designed to let end users in libraries act as their own researchers.

The goal at the end of the three-year project is for the library to host 20% of the data it will offer, with 80% being sourced on-line from institutions such as the Library of Congress, its Australian counterpart and other New Zealand sources. The project is called the National Document and Information Service (NDIS).

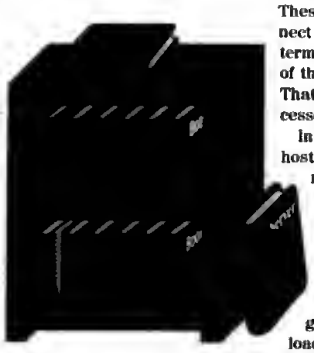
The National Library envisages that eventually all schools and universities will have access to NDIS. It also said it may offer a commercial service. "We have both a commercial and a social responsibility," said project manager Richard Hatfield.

To this end, an internal project team is focusing on developing the library's core business, essentially a business re-engineering exercise.

The joint libraries' fixed-price contract was awarded to Computer Sciences Corp. in Australia. The project needed a custom application solution that could scale up to handle very large numbers of users and thousands of simultaneous queries. It also needed flexibility in handling large interactive and batch workloads, simple architectures and ease of management.

Major revamp needed

Phase one, which will take 18 months to complete, calls for revamping the Kiwinet databases into a form with much more intelligent algorithms and the ability to search multiple databases. Currently, the library runs an Amdahl Corp. mainframe with an Adabas database from Software AG of North America, Inc. and BRS search software. Hatfield said the



mainframe will be phased out over the life of the project.

The replacement platform is IBM's RS/6000 Model SP2, which is based on the Power architecture and Power2 microprocessor technologies. It provides high-speed switching and up to 512 nodes. The system will run Oracle Corp.'s Parallel Server with a 156G-byte database.

End users will access the databases through a Windows-based PC or terminal; Macintoshes will be included later. These workstations will connect via a LAN or WAN to an intermediate host on which most of the application will reside. That host may also be accessed via the Internet.

In turn, the intermediate host will be connected by a variety of means — Interoet, direct line — to the SP2 search engine, which will be divided into the Oracle database and the application manager, with functions such as bibliographic control and data loading.

The primary development tools for the front-end graphical user interface is C++ and a package called Zinc, which eliminates work in repainting windows. When multimedia joins the system, Asynchronous Transfer Mode becomes part of the networking plans.

Phase two of the project involves delivering value-added services for other libraries. These libraries will use the same software but with extensions. This phase, which is scheduled to take nine months to complete, also includes the first step of implementing full access to international databases.

Phase three is the delivery of Maori language interfaces. The Australian National Library, in turn, is delivering Kanji and other Far Eastern language interfaces.

However, some issues must still be resolved. The first is how to charge and bill users. Hatfield said they will likely pay via credit card. The other major issue is likely to be copyright protection but that must be decided by the government.

Jackson writes for *Computerworld New Zealand*.


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Jeffrey M. Kaplan

Firms look to outsource — themselves



The growing acceptance of outsourcing has spawned a new trend — vendors and customers attempting to resell their internal operations management skills to external customers. This phenomenon holds some promise and many pitfalls for customers considering these services.

The outsourcing market caught fire with Eastman Kodak's decision to hand over the day-to-day management and administration of its desktop, data center and telecommunications operations to three outside vendors. One of these vendors is Digital Equipment Corp., which convinced Kodak that it could manage the company's telecommunications operations by showing how it managed its own worldwide network. What better way to demonstrate your ability to manage a customer's operations than by showing how you manage your own?

Follow the leader

Digital's success in using its internal operations as a sales tool to win this major outsourcing contract has become a model for others. Not only are various large-scale computer systems vendors employing this marketing technique to win outsourcing deals, but a number of customers from various vertical markets are also jumping into the fray because they believe they can convert their internal skills into revenue.

The only problem with this approach is that just because an internal organization has learned to manage its own day-to-day operations does not ensure that the company can succeed in other customers' environments.

Few people remember that Eastman Kodak established a separate subsidiary in the mid-1980s aimed at reselling its internal telecommunications capabilities to other companies in the Rochester, N.Y., area. The initiative was a dismal failure and was disbanded in less than a year. The organization could not convince potential customers that it could manage other people's networks.

Ironically, even though Digital persuaded Kodak to give it a shot at managing Kodak's network operations, Digital eventually had to relinquish its responsibility because it was unable to meet Kodak's expectations.

What went wrong?

Many companies that decide to delve into outsourcing — whether vendor or customer — are motivated by economic factors rather than a strong marketing case. These firms are often facing their own economic pressures. And rather than downsize underutilized information technology organizations, they look for ways to resell their skills to generate new revenue that can keep them intact.

Unfortunately, many internal support people are good at maintaining technology but lousy at managing client relationships. Only a handful of enlightened information technology organizations have won the full confidence of their own end users. And they probably achieved a stable computing environment and end-user approval after a long period of effort in a familiar environment. Few internal groups have the requisite skills to respond to the immediate needs of a potential outside client organization in an entirely foreign operating environment.

Key to success

A prospective outsourcing customer often faces serious systems issues and various political problems. Only a select number of vendors has the experience necessary to navigate these volatile situations. IBM and Sears have successfully merged their in-house networking organizations to form Advantis, which has become a viable supplier of network outsourcing services.

A key to their success has been blending the technical skills of the in-house staff with the sales, marketing and account management skills of experienced outsourcing professionals.

Customers who are considering outsourcing some aspect of their information technology operations should beware the novices in this business. You can ill-afford to be the training ground for aspiring outsourcing vendors, even if they are from well-intentioned peer organizations.

Kaplan is director of Dataquest, Inc.'s Worldwide Services Group in Framingham, Mass.



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Bank redesign pays off

Client/server system helps Comerica become leader in trade services

By Thomas Hoffman

As the nation's 28th largest bank in terms of assets, Comerica, Inc. might be dwarfed in size by Citicorp and other commercial giants. But Detroit-based Comerica's savvy use of client/server systems has helped the company elbow its way into a leadership position in trade services, where it is ranked 10th among the nation's Goliaths.

In 1986, American Management Systems, Inc. (AMS) helped Manufacturers Bank of Detroit — which merged with Comerica in 1991 — develop and implement a mainframe-based trade services platform. The goal was to automate its letters of credit and international collections. In 1993, Comerica worked again with Arlington, Va.-based AMS to downsize its trade services systems to a client/server platform.

"On the mainframe, it's very difficult to react quickly enough to change. It takes a lot of time to write [applications] in Cobol," said Bruce Valentine, first vice president of international operations at Comerica. "In a PC environment, we can be more proactive to the things our customers need."



Most of the learning curve involved tracking beta software.

— Bruce Valentine, first vice president of international operations, Comerica, Inc.

Comerica decided to "cut its teeth" on its mainframe-to-client/server migration by starting with its international collections applications because they represent a smaller, more manageable chunk of its trade services activities, Valentine said.

Comerica's trade services operations had been powered by an IBM 3090 mainframe running IBM's IMS database system. The bank has since converted to symmetrical multiprocessing (SMP) versions of Compaq Computer Corp.'s ProLiant 4000 servers. The four 90-MHz Pentium servers run Novell, Inc.'s NetWare 3.12 software. These servers connect to desktop clients that run IBM's OS/2 2.1 SMP operating system and IBM's DB2/2 for SMP database management system.

The $34 billion in assets bank considered developing its own trade services system before opting for AMS' TradeLine/Client Server system. "But that's a very touchy subject," said Valentine because every bank that tried to develop its own trade services system "had fallen down on the job."

Fortunately for Comerica, the third-party route for client/server trade services systems recently became a viable alternative for banks. "These [trade services systems] are now robust enough to run client/server. That certainly wasn't true five to eight years ago," said Michon Schenck, a technology analyst at The Tower Group, a banking and technology consultancy in Wellesley, Mass.

Productivity boost

Since Comerica completed the transition last October, the bank has improved end-user productivity by 10% to 15%. But before that could happen, the bank first had to contend with a sizable client/server learning curve.

"The majority of our pains were related to the large system integration project and the fact that we had so many pieces of beta software" to deal with, Valentine said. The bank also went through a rather arduous time translating its mainframe files, which were written in the EBCDIC language, to ASCII files on the client/server platform.

Comerica was able to migrate its mainframe-based EBCDIC files to ASCII by writing its own compression routines. This enabled the bank to "squeeze the data" from one format to the other, Valentine said. "There was nothing magical here — just hard work," he added.

Still, the migration appears to be paying off for both Comerica and its customers. Valentine said the bank anticipates a three-year return on investment from its $1 million trade services project.

Giving credit where credit is due

Comerica is also developing a Windows-based, electronic data interchange system to allow the bank to deliver letters of credit to its customers' computers.

The software, called Comerica Gateway, is being built with PowerBuilder development tools from Powersoft Corp., a unit of Sybase, Inc. Because of this, the system "gives you a lot more flexibility in gathering information and more flexibility in changing your templates, so you're not asking the bank to do it for you," said Sue Cole, an international operations manager at Medline Industries, Inc.

Medline, a medical supply company in Mundelein, Ill., has been beta-testing the letters-of-credit module for the past month.

The biggest benefit anticipated from Comerica Gateway will be Medline's ability to download purchase order information from the bank into its letters of credit, Cole said. Entering purchase order information into its letters of credit "is the most typing we do, so [the gateway] should save us a lot of time," she added.

— Thomas Hoffman

Users say no to client/server bundles

Prepackaged 'starter kits' lack flexibility

By Rosemary Calasso

The concept of preconfigured, easy-to-install software sounds like the perfect way for users to make a fast and painless move to client/server.

But it turns out that most users were not looking for this kind of jump start.

As a result, prepackaged client/server application bundles launched in the past year by companies such as SAP AG, Oracle Corp., SHL Systemhouse, Inc. and Walker Interactive Systems, Inc. have been mainly duds. Now these vendors are looking to fine-tune these programs.

But several users said recently that the need to do their own installations and customizing — no matter how difficult — is simply a bigger priority than shortcuts to client/server.

Take what they give

"The problem with any of these quick packages is that you have to take what they give you," said Mike Rood, manager of systems infrastructure at Autodesk, Inc. in San Rafael, Calif., which is implementing SAP's R/3 client/server suite worldwide.

"Our requirements are such that [a package] wouldn't work," Rood said. "We have modified the software and enhanced it because it didn't meet all our requirements." The company's R/3 installation has been in the works for more than a year, he added.

Several analysts said software providers thought users would want to avoid lengthy implementations and huge learning curves.

"The purpose of these programs was to short-circuit the learning process and get deliverable results," said Jeff Comport, an analyst at Gartner Group, Inc. in Stamford, Conn. "What went wrong is most organizations decided that what you leave behind by short-circuiting is not worth it."

SAP refocuses

Now SAP said it will focus more on delivering its Heidelberg, a scaled down R/3 that is scheduled to ship later this year. SAP will not officially yank its Special Delivery package off the market, but it will not aggressively market it either, company officials said.

SHL Systemhouse, which announced Quickstart in conjunction with Oracle last year, said it is considering another approach that would provide a more modular prepackaged bundle. This would offer a fixed number of choices — along the lines of a restaurant menu — so users could mix and match components and service offerings.

Oracle, meanwhile, has distanced itself from the entire Quickstart effort. It would not comment on the prepackaged bundle and said it was more of a Systemhouse program.

Fine-tuned or not, these packages may still not appeal to users if they preclude them from tailoring applications to their environments.

"Having a prepackaged system that doesn't include your requirements — I don't see how that will save you much time," said Jack Spurgeon, director of systems and the computer services division at Eastman Chemical Co. in Kingsport, Tenn. "I don't know if there are shortcuts that you can take."

According to Clare Gillan, an analyst at International Data Corp. in Framingham, Mass., it all comes down to one word: flexibility.

"Companies want flexibility. They have existing infrastructures. You can't just expect them to slap in a whole new system," she said.

Flexibility is key

While vendors offer bundles with fixed parts and prices, users want to do the following:

- Determine individual organization's requirements.
- Map requirements to most suitable application software.
- Modify software to match an organization's particular needs.

Slow sales

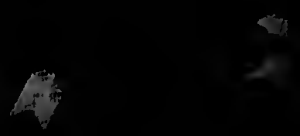
Altogether, SAP, Walker Interactive and the partnership of Oracle and SHL Systemhouse sold about two dozen client/server application bundles in the U.S. last year.

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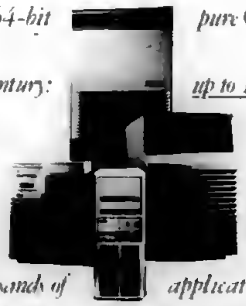


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Agency eyes data center consolidation

By Brad Bass
WASHINGTON

General Services administrator Roger Johnson said his agency will consolidate its 22 internal data centers into two. This move is in response to an analysis that showed the General Services Administration (GSA) pays 2½ times more for processing than private organizations commonly pay for the same amount of work.

Johnson said he is not yet prepared to decide whether to outsource the data centers or allow other agencies to handle the functions.

Johnson commissioned the analysis, which was conducted by GSA personnel with the help of auditors from Arthur Andersen & Co., to ascertain which, if any, GSA functions could be performed more effectively and less expensively outside the agency.

Johnson said GSA personnel must analyze the findings further to pinpoint why the agency pays more than its private counterparts. Meanwhile, the consolidation and other actions can lower costs in the short term, he said. "We're continuing to look at the implications of contracting it out," he said.

Julia Stasch, the GSA's deputy administrator, said a decision will also hinge on GSA analyses of the other aspects of the agency's operations, which are scheduled to be covered by Arthur Andersen. Because the data centers support a range of agency activities, those analyses will help determine whether the data centers will remain in-house, Stasch said.



Data centers and the agency's Public Building Service were the first areas analyzed as part of Johnson's comprehensive search for ways to downsize the agency.

Donald Venneberg, the GSA's deputy chief information officer, said the total annual cost per MIPS at GSA's data centers was $172,669, compared with an average of $59,000 in private industry.

"We're about 2½ times less efficient against this benchmark," Venneberg said. "This naturally caused us some concern. We discovered some things we ought to do now to improve our internal situation."

Money-saving plan

According to the analysis, the agency would save $1 million a year by closing smaller data centers that run below 400 MIPS. By merging the remaining centers into sites at Kansas City, Mo., and Fort Worth, Texas, the agency would save another $4.2 million a year.

Venneberg said no timetable has been set for the consolidation, but a plan is due by the end of next month.

"All of the machines don't get utilized as efficiently at smaller data centers," Johnson said. The consolidation will lead to reduced rent payments and less money spent on equipment, personnel and contractors, he added.

The agency has also begun replacing old Bull HN Information Systems, Inc. equipment, which has become costly to maintain, with equipment provided by Unisys Corp. Venneberg said the GSA will eliminate the Bull machines by the end of this fiscal year, saving the agency another $11.3 million a year.

Venneberg said more savings will accrue when a maintenance support contract with Infonet Services Corp. expires in December 1996 and a similar contract with Martin Marietta Corp. lapses a year or two later.

The agency may then move applications from legacy systems running proprietary code into a client/server architecture, Venneberg said.

Bass writes for *Federal Computer Week*, an IDG publication.

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Cross Access Corp. has recently announced CrossAccess 2.1, a SQL-based data delivery system.

According to the Oakbrook Terrace, Ill., company, CrossAccess 2.1 automates the mapping of nonrelational data into relational formats, providing real-time access to relational and nonrelational enterprisewide data. It was also designed to simplify the use of current legacy data definitions as a starting point for reconfiguration to a relational model.

CrossAccess 2.1 supports client platforms, including IBM MVS and AIX, Hewlett-Packard Co.'s HP-UX, Open VMS for Digital Equipment Corp.'s VAX and AXP, Sun Microsystems, Inc.'s Sun OS and Solaris and Santa Cruz Operation, Inc.'s SCO Unix. Supported server platforms include MVS, AIX, HP-UX, Open VMS for VAX and AXP, Sun OS and Solaris and SCO Unix.

Pricing for user-based or departmental licenses for CrossAccess 2.1 starts at $30,000. Site licenses are available.

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Forecross Corp. has introduced Convert/CSP-to-Cobol, an application migration product.

According to the San Francisco, Calif., company, Convert/CSP-to-Cobol helps large organizations move business systems from the IBM Cross System Product (CSP) platform to industry-standard Cobol II. It automatically migrates each CSP system component, including map, record, table and process definitions to the targeted environment.

Pricing for Convert/CSP-to-Cobol starts at $50,000 and is based on the number of applications to be migrated.

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Boole & Babbage, Inc. has announced CMF Monitor 5.2, an MVS performance monitoring software product.

According to the San Jose, Calif., company, CMF Monitor 5.2 manages IBM MVS systems in a Parallel Sysplex as well as a mainframe environment. It furnishes an array of views and functions to help operators and systems programmers pinpoint workload bottlenecks and resource contentions in their MVS enterprises.

CMF Monitor 5.2 is built on the Boole & Babbage Intercommunication (BBI) Facility architecture and features more than 40 Single System Image views for MVS Version 4.0 or later. It also includes data summarization and data filtering.

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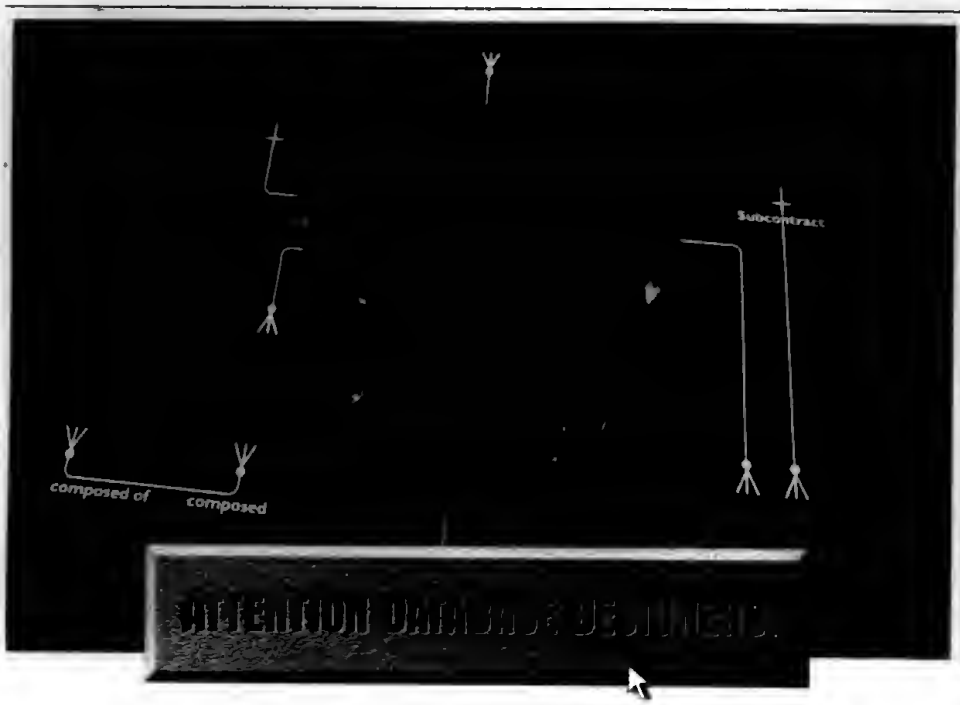
Mountain Network Solutions, Inc. has announced RAIDsafe, a disk array subsystem.

According to the Scotts Valley, Calif., company, RAIDsafe can incorporate up to five 1.2G-byte hard drives in a redundant, fault-tolerant data and image storage system. It features striping software that permits data from a single record to be written to and read from two drives simultaneously, letting the array operate at high transfer rates.

RAIDsafe is available in either RAID 3 or RAID 5 arrangements. RAIDsafe RAID 3 incorporates four disk drives in a parallel fashion and a dedicated disk drive to store parity information. It was designed for large data block applications with high data transfer rates. RAIDsafe RAID 5 uses distributed parity to minimize block size penalties and was designed for applications with small data blocks and high request rates (like multiuser databases and transaction processing).

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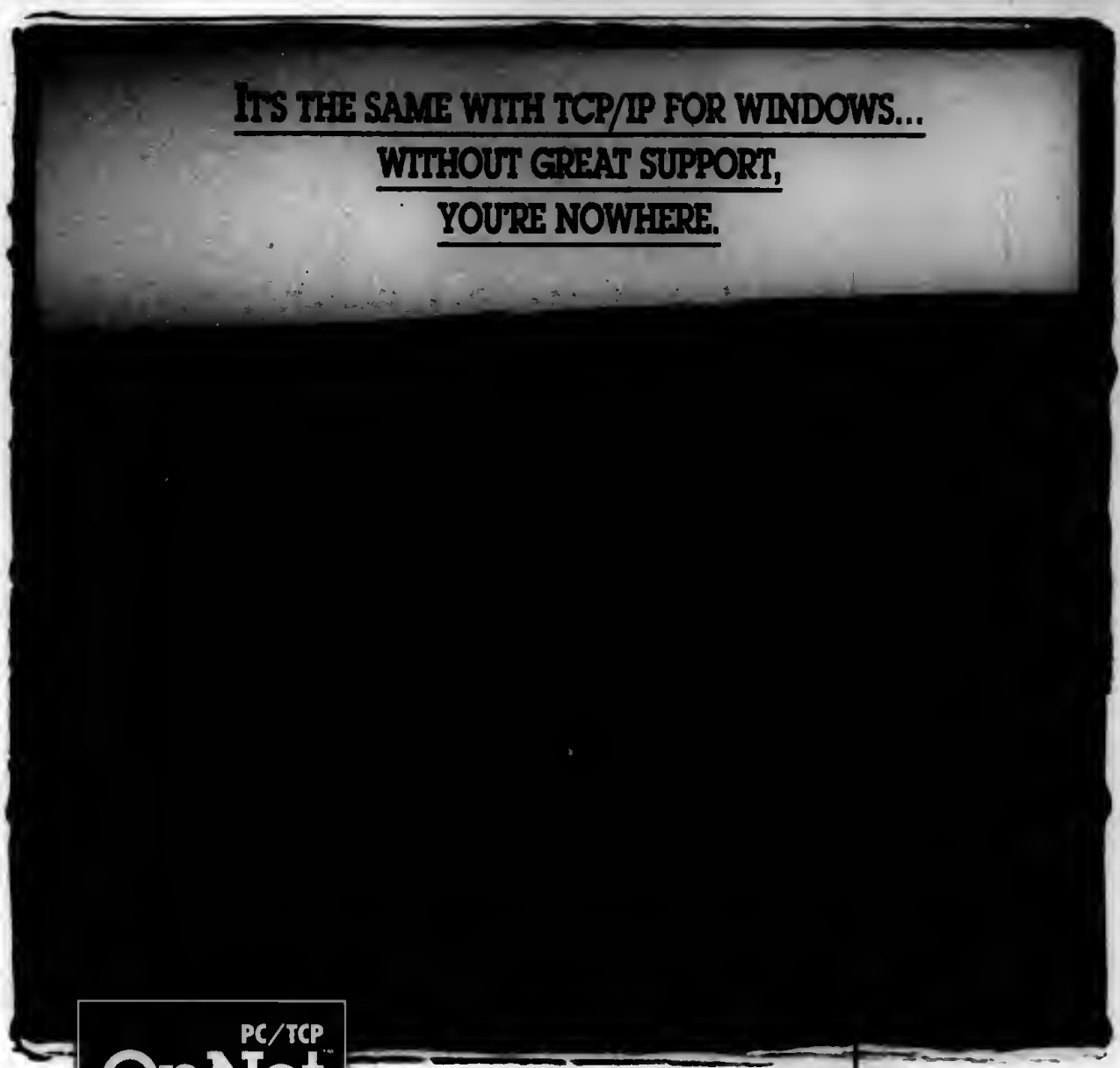
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PROGRESS

Development and Beyond

Novell to customers: the OpenDoc is in

By Lisa Picarille

■ Novell, Inc. is pledging its unwavering support for the fledgling OpenDoc compound document architecture despite plans to first deliver its popular suite of productivity applications with support for Microsoft Corp.'s rival OLE technology.

"OpenDoc is our No. 1 priority; OLE is second," said Ed Firmage, director of marketing NetWare development tools for Novell.

Novell, along with Apple Computer, Inc., IBM, Lotus Development Corp. and other industry heavyweights, is a major force behind OpenDoc, a standard that enables developers to create applications with components that can be used with other OpenDoc-compliant software regardless of platform.

But OpenDoc is lagging behind Microsoft's proprietary OLE technology, which accomplishes similar tasks and is already widely implemented in Windows applications. The final version of OpenDoc for Macintosh application programming interfaces (API) will not be available to developers until September.

But because Novell's release of a Windows 95 version of its PerfectOffice suite of applications is not due until December, WordPerfect, the Novell Applications Group, was forced to include OLE support in its forthcoming version of PerfectOffice. OpenDoc support will be added to PerfectOffice "in an evolutionary manner," said Bill Kesselring, OpenDoc product manager at Novell.

Taking sides

But that might not happen until "close to the end of 1996 or later," said Kesselring, who added that Novell's timing should in no way be taken as a show of support for OLE at the expense of OpenDoc.

The OLE vs. OpenDoc debate has become a political issue with developers: Support for OpenDoc is viewed as a stance against Microsoft. But users claim that politics is preventing them from getting the technical information necessary to make a choice.

"Ultimately, people are interested in both, but I'm not sure that there is enough information out there to understand the differences between the two technologies or support this kind of political war," said Bill Monteith, executive director at MacIS, a consortium of more than 600 Macintosh managers.

OpenDoc allows developers to create componentized parts that will plug and play, but so far that capability is all talk because none of the pieces are available. Users may be more excited when they see what commercial developers have to offer, Monteith said.

Object ORIENTED

Final edition

At its Worldwide Developers Conference last month in San Jose, Calif., Apple delivered the final beta version of OpenDoc for the Macintosh.

So what?

However, some industry watchers question whether users even care about these technologies.

"Customers don't want any of this stuff; they just want applications. And for corporate developers, both of these technologies are a pain to work with," said Jeffrey Tarter, editor of "Soft Letter," an industry newsletter in Watertown, Mass.

Long term, Novell plans to deliver its products with OpenDoc support. The Provo, Utah, company said it will ship its OpenDoc-based Compound Document Service (CDS) by the end of 1996. CDS will enable users to store, open, index, search and track versions of documents across a NetWare network and across platforms.

Novell is expected to release this fall a Macintosh version of AppWare for OpenDoc, its program that allows users to graphically construct applications using prebuilt components. The OpenDoc Windows version is slated to follow within six months, Kesselring said.

On-line guide unifies automobile association

Customer service expands

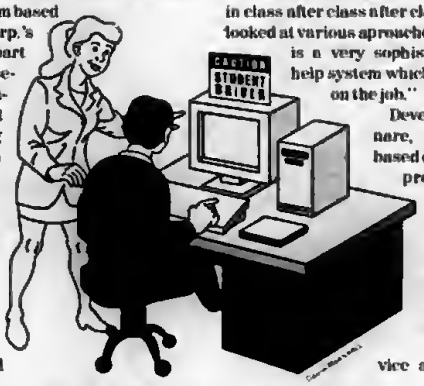
By Julia King

The California State Automobile Association (CSAA) is deploying its first-ever PC-based information system in an effort to retrain frontline workers and, ultimately, boost customer service and profits.

Known as CSAA Online Guide, the multimillion-dollar system based on Microsoft Corp.'s Windows NT is part of an enterprisewide business re-engineering effort aimed at enabling the automobile club to more efficiently cross-sell its insurance, automotive and travel-related products and services.

"The idea behind CSAA Online is one of gaining efficiencies," said Autumn Wagner, manager of CSAA's reskilling program.

"CSAA has 3 million members, and we're always growing so we want to handle more work without increasing staff," she said. The CSAA Online Guide system helps the organization do that by expanding the breadth of tasks that staffers can perform without making a significant time investment in conventional training.



Of the $50 billion a year that U.S. companies spend on training, about 72%, or $36.5 billion, goes for training staff salaries.

Out with the old

Until a few years ago, CSAA was organized into several business departments, each with its own policies, procedures and group of customer service workers knowledgeable about products in their own department. (Then and now, access to most customer information, all of which is stored in separate mainframe-based applications, is via 3270 terminals located at 72 district offices.)

California State Automobile Association

- 3.3 million members
- 2 million insurance customers
- 6,000 employees in 90 offices throughout California, Nevada and Utah

One of the biggest problems with the old arrangement was just how daunting it could be for the association's members. It frequently took several calls to different customer service workers to solve a problem.

Moreover, CSAA was missing out on potential sales opportunities because departmentalized workers were unaware of other CSAA products and services they could offer callers.

To be more competitive, the association decided to embrace a one-stop shopping approach whereby customers could call a single customer service representative for everything they needed.

"The challenge we were up against was converting from a single-function to a multifunctional staff. We also wanted to do it in an 18-month time period," Wagner said.

"With 1,500 people to train, we knew we couldn't do it the traditional way and put people in class after class after class," she noted. "We looked at various approaches, and what we built is a very sophisticated, customized help system which employees can use on the job."

Developed with Luminare, a San Francisco-based developer of training programs, the on-line system functions like a set of electronic cue cards, feeding customer service workers just-in-time information about whatever product or service a customer calls in about.

Based on the same kind of help functions in Windows, the system enables users to quickly retrieve and save information using search, glossary and bookmark features.

"Before the on-line system, we had all of our little cheat sheets. Everything was on a separate piece of paper, and every time there was a change in a procedure, you were asking members to please hold on while you looked something up," said Will Elton, a telephone service consultant at CSAA's Petaluma, Calif., office and an early system user.

Now, by contrast, "I just click on my mouse," Elton said. "There's no break in the conversation. It gives me confidence, and it gives the member who is calling confidence that the information I'm giving them is accurate."

Overall, the system contains more than 10,000 pieces of information, 750 pop-up windows and 6,000 screens, all of which are stored in a Paradox database. It also includes 88 "self-directed" training modules, which employees complete on their own.

Transaction errors are also down, according to Wagner, who said CSAA expects to realize a 300% return on investment in the system, largely through "cutting out errors and the rework they require."

Computerworld Editorial Calendar

July - September 1995

Issue Dates	Ad Closings Color*	Ad Closings B&W	Editorial Features & Custom Publications	Show Distribution & Ad Readership Study Issues
July 3	June 16	June 23	**CW Guide To: PDAs** Personal Digital Assistants, the latest evolution of microprocessor power in a small package, present unique buying options and support issues for IS organizations. This Guide will examine the leading products and tasks IS has in selecting and managing them. **Buyers' Satisfaction Scorecard:** Market leading PDAs **Firing Line:** Newest PDA from a leading vendor	
July 10	June 23	June 30	**Closer Look:** Unisys	Starch Study
July 17	June 30	July 7	**CW Guide To: DBMS** The focus of database management systems is as the server for a variety of applications. Depending on the application type, IS organizations face varied buying decisions. We will examine which databases match which application needs best and analyze the leading products in each area. **Buyers' Satisfaction Scorecard:** Market leading SQL database mgmt systems for midrange servers **Firing Line:** Latest DBMS from a leading vendor	
July 24	July 7	July 14	**Closer Look:** Power Macintosh	**Enterprise Computing** Chicago 7/26 - 7/28
July 31	July 14	July 21	**CW Guide To: Workgroup and Collaborative Software** Beyond e-mail and document management users are seeking products that help them manage business processes and work as teams. This Guide will examine how well the vendors are meeting this need **Buyers' Satisfaction Scorecard:** Market leading workgroup software **Firing Line:** Latest collaborative product from a leading vendor	
Aug.	June 28		**Computerworld Client/Server Journal** **Vertical Market Focus:** Insurance **Section Feature:** Product Focus on Networking	Object World Networks Expo Interop + Networld Unix Expo Harvey Study
Aug. 7	July 21	July 28	**Special Report:** Re-engineering the Workplace	
Aug. 14	July 28	Aug. 4	**CW Guide To: Desktop Databases** Personal databases that act as front ends to company applications and DBMS, as well as PC-based packages that serve the needs of workgroups or departments will be examined with the focus on IS buying decisions **Buyers' Satisfaction Scorecard:** Market leading desktop databases **Firing Line:** Latest DBMS from a leading vendor	**Object World** San Francisco 8/15 - 8/17
Aug. 21	Aug. 4	Aug. 11	**Closer Look:** Sun Workstations	
Aug. 28	Aug. 11	Aug. 18	**CW Guide To: Client/Server Financial Applications** One of the first applications companies move off of the mainframe is financials. But only recently have the vendors begun producing true client/server offerings. We'll look at how users like them and what more they need. **Buyers' Satisfaction Scorecard:** Market leading client/server financial software **Firing Line:** Latest client/server financial software from a leading vendor	Starch Study
Sept. 4	Aug. 18	Aug. 25	**Special Report:** Annual Salary Survey	
Sept. 11	Aug. 25	Sept. 1	**CW Guide To: Internetworking Routers and Hubs** Facing competition from many areas, routers and hub vendors are adding capabilities and repositioning themselves. How do these changes affect IS buying plans and what is the future internetworking product set? **Buyers' Satisfaction Scorecard:** Market leading hubs and routers **Firing Line:** Latest hub or router from a leading vendor **Custom Publication:** Object Application Awards Supplement	**Networks Expo** Dallas 9/12 - 9/14 Starch Study
Sept. 18	Sept. 1	Sept. 8	**Closer Look:** Client/Server Manufacturing Software	
Sept. 25	Sept. 8	Sept. 15	**CW Guide To: ATM Switches** ATM is becoming more widely installed and product offerings are multiplying. What are the benefits and caveats of this new high-performance technology? **Buyers' Satisfaction Scorecard:** Market leading ATM switches **Firing Line:** Latest ATM software from a leading vendor **Custom Publication:** White Paper on The Business Case for Client/Server (part 3 of 4-part Enterprise Software Directions Series)	**Interop + Networld** Atlanta 9/25 - 9/29 **Unix Expo,** New York City 9/26 - 9/28

Editorial contacts (508) 879-0700 Management Features: Allan Alter, Closer Look: James Connolly, CW Guide To: Michael Sullivan-Trainor, Buyers' Satisfaction Scorecard: Michael Sullivan-Trainor, Firing Line: Kevin Burden, Re-engineering the Workplace & Electronic Commerce: Joe Maglitta
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Computerworld Editorial Calendar

October - December, 1995

Issue Dates	Ad Closings Color*	Ad Closings B&W	Editorial Features & Custom Publications	Show Distribution & Ad Readership Study Issues
Oct.	Aug.		**Computerworld Client/Server Journal** **Vertical Market Focus:** Transportation **Section Feature:** Product Focus on Database Tools	Software Developers' Conference SIM Fall Conference Harvey Study
Oct.	Sept.	Sept.	**Closer Look:** Lotus **Custom Publication:** White Paper on Manufacturing Technology Managing for Change (part 3 of 4-part Manufacturing Series)	**Software Developers Conference** Washington, D.C. 10/3 - 10/7
Oct. 9	Sept. 22	Sept. 29	**CW Guide To: Large Scale Servers** Mainframes, massively parallel multi-processors and supercomputers have their place in large corporations where data and applications require enormous processing power. How do the leading products shape up in this category and how much flexibility do they offer IS? **Buyers' Satisfaction Scorecard:** Market leading large scale systems **Firing Line:** Latest large scale system from a leading vendor	
Oct. 16	Sept. 29	Oct. 6	**Closer Look:** ISDN Update/Frame Relay	Starch Study
Oct. 23	Oct. 6	Oct. 13	**CW Guide To: Network Operating Systems** As operating systems take on more management capabilities, the buying decision changes. IS managers must look at the benefits of increased functionality and the trials of implementing it. What are the NOS trade-offs? **Buyers' Satisfaction Scorecard:** Market leading LAN operating systems **Firing Line:** Latest LAN operating system from a leading vendor	**SIM Fall Conference** Orlando, FL 10/22 - 10/25
Oct. 30	Oct. 13	Oct. 20	**Closer Look:** PC Storage **Special Issue:** Campus Edition (mails 10/31)	
Nov.	Sept. 27		**Computerworld Client/Server Journal** **Vertical Market Focus:** Brokerage **Section Feature:** Product Focus on Development Tools	Comdex Fall Mobile World Client/Server World DB Expo Harvey Study
Nov. 6	Oct. 20	Oct. 27	**CW Guide To: Object-oriented DBMS and Development Tools** Is object-oriented the next wave in DBMS or is it an embedded technology that will gradually simply add functionality to present offerings? This question and how it affects IS buying decisions will be examined. **Buyers' Satisfaction Scorecard:** Market leading object-oriented DBMS **Firing Line:** Latest object-oriented DBMS from a leading vendor	Starch Study
Nov. 13	Oct. 27	Nov. 3	**CW Guide To: Desktop PCs** Pentium, PowerPC and other platforms will be examined with regard to the migration issues and performance gains they provide **Buyers' Satisfaction Scorecard:** Market leading desktop PCs **Firing Line:** Latest desktop PC from a leading vendor	**Comdex Fall** Las Vegas 11/13 - 11/17
Nov. 20	Nov. 3	Nov. 10	**Special Report:** Electronic Commerce	
Nov. 27	Nov. 10	Nov. 17	**Closer Look:** Internet Browsers	**Mobile World** Boston 11/28 - 11/30
Dec. 4	Nov. 17	Nov. 22*	**Closer Look:** Visual Development Tools **Custom Publication:** White Paper on Service Solutions for Client/Server (part 4 of 4-part Enterprise Software Directions Series)	**Client/Server World** Chicago 12/5 - 12/7 **DB Expo** New York City 12/5 - 12/7 Starch Study
Dec. 11	Nov. 22*	Dec. 1	**CW Guide To: Messaging Software and E-mail** With e-mail going through a major architectural change to client/server, the market will have a very different shape. IS should be able to purchase products that better address company needs **Buyers' Satisfaction Scorecard:** Market leading e-mail software **Firing Line:** Latest e-mail package from a leading vendor **Custom Publication:** White Paper on Manufacturing Acquisition Strategies: A Guide for User Empowerment (part 4 of 4-part Manufacturing Series)	
Dec. 18	Dec. 1	Dec. 8	**Closer Look:** Contact Management Tools	
Dec. - Jan.	Dec. 8	Dec. 15	**Annual Forecast Issue** (1996 issue)	

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Object databases take on a relational identity

By Kim S. Nash

Object databases have started to get relational.

That is, a new crop of object-oriented databases boasts reliability features long established in the relational database realm, such as on-line backups and various security measures.

At the same time, object databases are starting to include object-to-relational translator layers designed to let users build object-oriented applications that access data already stored in corporate relational databases.

As a result, "users might get some real work done with these products," said Mitch Kramer, an analyst at Boston-based Patricia Seybold Group.

When object database products began to emerge four or five years ago, many proponents thought they would replace relational systems from Oracle Corp., Sybase, Inc. and others, Kramer explained.

"But now they see that the way to survive is to complement the Oracles of the world, not try to conquer them," he said.

Indeed, such replacement "ain't happening," acknowledged Jay Mellman, director of product marketing at Versant Object Technology Corp. in Menlo Park, Calif.

Instead, Versant and competing vendors are trying to carve out niches that target applications for which object databases outperform relational products. Versant, for example, has chosen network management and counts among its customers telecommunications firms such as BT North America, Inc., Ericsson Network Systems and MCI Communications, Inc., Mellman said.

Versant plans to announce this week an upgrade to its namesake product designed to raise the bar on object database reliability, according to users and analysts briefed by the company.

For example, Versant 4.0 includes database triggers, which are packages of code that, when invoked by an end user or another database, can launch other events. Triggers are commonly used to enforce business rules or to set off security procedures to authenticate users trying to access the database.

Change of focus

Gemstone plans to stop work on its application development tool, GeOde, to concentrate fully on database products.

Room for two

Object database makers "have realized that both relational and object architectures will live on, but they will share space in IS," said Dave Jordan, a member of the technical staff at AT&T Bell Laboratories in Columbus, Ohio.

But some users are unconvinced. Bankers Trust Co. in New York evaluated — then rejected — ObjectStore from Object Design, Inc. in Burlington, Mass., and Persistence from Persistence Software, Inc. in San Mateo, Calif.

The bank tested those products in various applications, including specialized financial investment systems, but backed away from the idea due to a lack of reliable administrative tools to support the object databases, according to Sarina Pang, vice president of client/server engineering at the bank.

"We see limited use in heavy applications," Pang said. "The object space is not ready for prime time."

Gemstone Systems, Inc. in Beaverton, Ore., claims to have addressed such problems with, for example, built-in capabilities to do database backup and recovery, said Doug Pollack, vice president of marketing at the firm, formerly known as Servio Corp.

Meanwhile, Gemstone last week unveiled Gemstone 4.1, a database upgrade with enhanced administrative features and support for application partitioning. The product also supports Microsoft Corp.'s Windows NT/Advanced Server operating system.

The company's niche? Middleware, Pollack said.

Gemstone is trying to reposition itself as a provider of middleware that translates between relational and object-oriented data and applications in a three-tiered client/server system, Pollack said.

Object database bonanza

A sample of recent product upgrades and introductions

Company	Product	Purpose	Availability Price
Gemstone*	Gemstone 4.1	Object database	August/**
Omniscience	Omniscience 2.0	Object-relational hybrid PC database	Now/$99
Versant	Versant 4.0	Object database	July/$5,550 or $9,000 per seat***

*Formerly known as Servio Corp. **Pricing not available until product ships ***Depending on platform

Product data management picks up steam

Adra hopes to gain in a crowded field

By Tim Ouellette

To meet the requirements of an important government product development contract, information systems manager Sheldon Buck wanted to automate access to all product development applications, related documents and the development process itself.

Draper Laboratory's IS manager, along with a growing number of users in manufacturing circles, turned to a type of software called product data management (PDM).

Buck's choice was Matrix from Adra Systems, Inc. in Chelmsford, Mass. The software acts as the main interface for users who need access to all kinds of information related to a product's development stages — such as computer-aided design drawings, parts diagrams and lists — along with the applications used to create these documents. With Matrix, users can also control how work flows through the company during the development process and then measure progress to streamline future product development methods.

As a relative newcomer to the PDM arena, Adra faces an uphill battle against competitors such as Sherpa Corp., IBM and Computervision Corp., analysts said (see chart).

Currently, most PDM users are found in engineering departments. Yet Matrix's object-oriented technology offers the potential for use beyond engineering to finance and other fields, said Dave Albert, a consultant at Albert Consulting Group in Saratoga, Calif.

Version 3.0 of Adra's object-oriented software, released this week, adds the capability to send electronic mail from the Matrix environment to other E-mail systems. It also includes a forms builder and a drag-and-drop feature that lets users associate objects with one another. Matrix 3.0 runs with Windows and on most Unix-based systems across distributed networks.

At Cambridge, Mass.-based Draper Labs, Buck said he likes that Matrix lets users search for image files by looking through a field of icons or small images of a part instead of a list of file names. "The ability to browse through images instead of long lists made it attractive," he explained.

And when Draper reorganized from three divisions to seven directorates, Buck was able to make all the workflow changes within one week on his own. He plans to run the 24-person pilot program enterprisewide to completely replace the paper-based filing system.

The same enthusiasm for such capabilities was voiced by John Grobner, principal design engineer at battery manufacturer GNB Technology. "Once we saw what the software could do, we are seeing more and more applications for it," he said.

The St. Paul, Minn., firm installed Matrix primarily to handle document control. The product's next task will be to handle the company's document approval process, extending Matrix to GNB's worldwide network and having it act as the front end to J. D. Edwards, Inc.'s manufacturing resource planning system in the engineering department, Grobner added.

Along with Matrix 3.0, Adra is announcing a new application programming interface so developers can create programs for Matrix or link other applications to Matrix. Also new from the vendor is a RapidStart program that gets customers up and running while customization of the whole system is under way.

With growing requirements for make-to-order purchases and "mass customization," more firms need to radically reduce the cycle time for development, said Bobby Cameron, an analyst at Forrester Research, Inc. in Boston. He said he sees PDM as the start of a class of applications that mix complex data — such as a parts diagram image object — with traditional tabular data.

"Once again the engineering side companies are taking a leap ahead," Cameron said. "This market has come out of almost nowhere. I've heard more on it in the last six months than in last six years."

The PDM market

There is no clear Product Data Management (PDM) market leader right now, but analysts say they expect the market to grow to 1.6 billion by 1999

Vendor	Market share
Computervision	7%
Sherpa	5%
Structured Dynamic Research	4%
Hewlett-Packard	4%
Formtek	3%
Intergraph	3%
IBM	3%
Others	71%
Total 1994 market: $478M	

Source: CIMdata, Inc., Ann Arbor, Mich.

How Frito-Lay Handles the Decision Making CRUNCH



Doritos® and Tostitos brand Tortilla Chips, Lay's® and Ruffles® brand Potato Chips, and Rold Gold brand Pretzels

It's hard to imagine any company that understands consumer tastes better than Frito-Lay, a leader in the U.S. salty snack category with annual revenues of more than $5 billion. Yet Frito-Lay is determined to get even closer to its 400,000 retail customers.

In fact, a decentralization effort begun in 1990 has, in the last five years, brought a renewed sense of ownership and empowerment to the 30,000 Frito-Lay employees. As part of this ownership, Frito-Lay's Information/Technology Systems department (I/TS) has created a tactical, market-driven decision support system—the Zone Workbench System—designed to get timely information in the hands of front-line managers.

It's an application built from the customer up, and the SAS® System of software has been there every step of the way.

"The Zone Manager is the first line of communication with our Route Sales force," says Tom Nealon, Director of I/TS for Frito-Lay, whose department spearheaded development of the decision support system. "We knew from the start that the Zone Workbench had to provide information that was 'actionable'. It also had to be portable across client/server, workstation, or laptop environments. Equally important was the ability to integrate multiple data sources."

Delivering More than Software Alone

"Given the tight schedule, the software company we chose had to provide superior applications development tools—as well as comprehensive training, consulting services, and documentation," adds Nealon. "SAS Institute came through on every count, proving time and again the value of having a software vendor that's as interested as we are in completing projects on time and on target."

Nealon calls the Zone Workbench "a tremendously versatile business tool proving user-friendliness, power, and portal'lity between platforms can all operate in one package. The old-style EIS systems are antiques. The game today is to provide information that can impact the marketplace each day, for each of our customers. For Frito-Lay, SAS Institute is making sure we have the tools to make an impact."

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[redacted]

Platinum Technology, Inc. has announced Platinum SQL Coder 1.6, a system for database developers.

According to the Oakbrook Terrace, Ill., company, Platinum SQL Coder 1.6 is a repository-based server code and object management system. It offers project and object management capabilities with Microsoft Multiple Selection commands and execution analysis capabilities.

Platinum SQL Coder 1.6 supports relational database management systems from Oracle Corp., Sybase, Inc. and Microsoft Corp.

Pricing for Platinum SQL Coder 1.6 starts at $795 for a single-user license.

▶ *Platinum Technology*
(708) 620-5116

Integrated Computer Solutions, Inc. has introduced ViewKit ObjectPak, a C++ application framework.

According to the Cambridge, Mass., company, ViewKit ObjectPak simplifies the task of developing applications based on the Open Software Foundation's Motif user interface tool kit. It includes a framework and design paradigm for C++ development along with a set of C++ classes. ViewKit ObjectPak was designed to serve as the base for wide-scale software reuse.

ViewKit ObjectPak is available in binary and source form. Binaries are currently available for Digital Equipment Corp.'s Digital Unix, Hewlett-Packard Co.'s HP-UX, IBM's AIX and Sun Microsystems, Inc.'s SunOS and Solaris.

ViewKit ObjectPak is licensed on a per-developer basis. Pricing for licenses starts at $1,995.

▶ *Integrated Computer Solutions*
(617) 621-0060

Applied Business Technology Corp. has announced Project Workbench Professional.

According to the New York company, Project Workbench Professional gives project managers a set of functions for managing a project life cycle. It lets users guide a project from planning to scheduling, tracking and analysis.

Project Workbench Professional features a process-flow user interface and includes re-engineering facilities that capture information from successful projects and create models for future projects.

Project Workbeneb Professional costs $2,500.

▶ *Applied Business Technology*
(212) 219-8945

Omniscience Object Technology, Inc. has introduced Omniscience Object-Relational Database Management System (ORDBMS) 2.0.

According to the Santa Clara, Calif., company, ORDBMS 2.0 is a production-quality object and relational database. It can handle interoperability across different language interfaces, especially between SQL and object databases in a single Windows program.

Development features include sophisticated caching, rollback and crash recovery, querying capabilities, database compaction and b-tree indexes.

Omniscience ORDBMS 2.0 is available for Microsoft Corp.'s 16-bit Windows 3.1 and 32-bit Windows NT.

Pricing for Omniscience ORDBMS 2.0 starts at $99.

▶ *Omniscience Object Technology*
(408) 562-0799

KL Group, Inc. has released XRT/field, a component for Open Software Foundation Motif developers.

According to the Toronto company, XRT/field is an integrated collection of widgets that let developers build data-entry forms with field-level validation. The product prompts users for valid values, validates values as they are entered, completes values and converts values to strings, dates or integers. It was designed to relieve programmers of writing and copying repeating validation code on multiple data entry forms.

XRT/field can be used in Motif programs without changing code. It supports automatic validation by using masks, ranges or pick lists, conversion of entered values and scrollbars.

A single XRT/field development license costs $995. Network site licenses are also available.

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Inside
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In the Lion's Den

As the clock ticks on a 1997 buyout, MGM/UA's Edward N. Altman races to help a struggling Hollywood studio rebuild

By Joseph Maglitta

NOT LONG AFTER he took the top information systems post at Metro-Goldwyn Mayer, Inc. last January, Edward N. Altman wondered if he'd landed in the lion's den.

Over the past 15 years, the once proud studio and its trademark lion have gone from a roar to a whimper. MGM's huge catalog of films, the MGM Grand Hotel and other key holdings have been carved off, sold and resold by profit-hungry owners. Today, the maker of *Gone With The Wind*, *The Wizard of Oz* and other movie classics suffers the lowest revenue of any major Hollywood studio.

And the clock is ticking. Credit Lyonais SA took bankruptcy ownership of MGM/United Artists in 1990. Under U.S. law, the troubled French bank must sell at least 75% of the studio by May 1997. To make MGM more attractive to potential buyers, Chairman Frank Mancuso and his turnaround team hope, among other things, to finance new projects by boosting sales of old films and television shows.

Altman knew all this when he left his job as executive director of systems development at Paramount Pictures Corp. But the dapper Californian soon discovered the gulf between MGM's past and future was even deeper than he'd first believed.

After a couple of weeks as vice president of management information services at MGM's snappy new headquarters in Santa Monica, Calif., Altman recalls thinking: " 'My God, do I have a lot of work ahead of me!' I knew I had a lot of issues. But as I drilled down, more and more issues just came out."

MGM's information technology mirrored its sad recent history. Past acquisitions had produced a mishmash of 23 different and unconnected computer systems. Key data hid on individual PCs.

"Starting in 1969, this company just stripped and ripped," one company veteran says. "They didn't care about IS." Users who had PCs ran 286s with DOS or dumb terminals linked to an IBM mainframe run by Litton Computer Services.

Worse, Altman says, there was no corporate database or administrator. Rapid application development, prototyping and other modern software development techniques for open systems and client/server were unknown. "GUI," Altman recalls, "was something you got at the state fair and had to wash from your hands."

In the Lion's Den, *page 100*



ALEX LIVESEY

MGM'S EDWARD N. ALTMAN: Seeking the roar of success

In the Lion's Den

CONTINUED FROM PAGE 98

Eighteen months later, it's a different technology picture at MGM. Development teams are putting the finishing touches on the largest IS project ever tackled by the studio — a worldwide sales tracking and rights system known as STARS.

When completed, the client/server-based system will play the key supporting role in MGM's bid to recast itself as a major international theatrical, home entertainment and video production and distribution company (see story below). With the new system, laptop-equipped MGM sales representatives will be able to access information on all MGM products and customers worldwide in a single database. Media and financial analysts give the idea two thumbs up.

"You've got to know what you have to sell," says Stuart Rossmiller, director of media and telecommunications research at Fitch Investors Service in New York. He says potential buyers of MGM will see STARS as supporting a steady revenue source.

There's no Hollywood ending yet, however. The rollout of STARS is six months behind schedule. MGM management is said to be increasingly concerned about the project, which began last March.

Altman and Jeffrey Karbowiak, who managed the re-engineering part of STARS, downplay the delay. "We purposely set an aggressive time line," says Karbowiak, who in April became vice president of operations and finance for MGM/UA's home entertainment division. "We knew it was too ambitious."

Altman notes the project includes major front-end and AS/400 legacy phases, so slowdowns were inevitable. "We're also programming on computers and practicing management disciplines that never before existed here," he adds.

He adds that it's important to view STARS as only a piece — though a key one — of a much wider, radical recasting of IS and user relations. He points to a host of other reforms and programs.

End-user relations were a top priority. Former Chief Information Officer John Sanders left in early 1993 to head IS at Republic/Spelling Productions. So when Altman signed on, the post had been vacant for a year. The new boss formed an end-user steering committee that has met monthly since last summer.

Modernizing IS and the technical infrastructure was another major task, Altman says.

"I let IS people know what was expected: to be business partners and to use new technology to accomplish that," he says. Staffers were told bluntly, the new way or the highway. In the first three months, Altman had to replace three of his top reports.

He then brought in his own management team. Trevor Wong, director of operations; Carol Campbell, director of strategic systems development; and Ed Themann, director of core systems development.

Technology budgeting was also revamped to include users.

The team has installed Lotus' CC:Mail worldwide as well as Notes and standardized on new Compaq Computer Corp. 486 PCs. It mounted what it claims was Hollywood's first World-Wide Web home page last summer.

Perhaps most important, Altman's team has pushed client/server as a corporate standard to support a new team-based approach.

MGM last March set up its first client/server development group. New staffers were hired to work alongside contractors, and consultants were brought in to speed the task.

"MIS conversion — if you want things quickly and efficiently — doesn't work," Altman says. "To get the existing organization to change [enough to tackle client/server immediately] was virtually impossible." Today, some 20 or 30 outsiders work with MGM's 50-person IS staff.

Altman, who headed client/server development at Paramount, credits some progress to the fact that he reports to his biggest end user — Deborah Snyder, executive vice president of distribution and information services — instead of a financial officer. That, he says, provided the alignment and freedom he needed to be effective.

Has IS cultural change caught on? "Nobody designs in a vacuum here," Themann says. "User groups and IS act as one team."

Still, an occasional user grouses about too much change. Says a company insider: "He's shooting too fast for some people."

Still, Karbowiak says most users are delighted at the new approach. "I feel my voice is heard," he says, adding that "it's fun to be at MGM again."

As the sale deadline approaches, Altman says he isn't worried that a new owner will clean house. "The only reason someone will buy us is that they like what we've built," he reasons.

So work races ahead. Three major client/server projects are under way. So is the rollout of a Notes-based, automated PC order and acquisition system offered by Entex Information Services. Mainframe applications must still be migrated to new systems.

Moreover, Themann's group has begun developing a new "theatrical distribution system" called Triad. And a new interactive media group and prototype studio store in Santa Monica could mean new directions for IS.

In the coming months, Altman says he plans to keep focused on delivery. "People can trust you and like you," he says, "but if you don't deliver results, forget it." ■

Magiitta is *Computerworld*'s senior editor, corporate strategies.

After a couple of weeks, Edward Altman recalls thinking: "My God, do I have a lot of work ahead of me!" I knew I had a lot of issues. But as I drilled down, more and more issues just came out."

Counteroffensive

Altman has taken the following steps to revitalize IS at MGM/UA:

- Formed 20-person end-user steering committee.
- Adopted new "IS baseline" budgeting. Other projects are funded individually.
- Brought in consultants to form client/server development team.
- Started "Byte for Lunch" pizza-party discussions of new technology.
- Scrapped 286 PCs; standardized on 486s.
- Set up divisional help desk for home entertainment unit.
- Piloted Notes-based PC acquisition system.
- Drafted written career and education plans for every IS employee.

The Lion On-line

Some MGM applications anyone can use are these World-Wide Web sites:

MGM/UA: The Lion's Den (home page)
Features clips of MGM/UA films, from classics to current releases, music library, general store and more. http://www/earthlink.net/MGM/

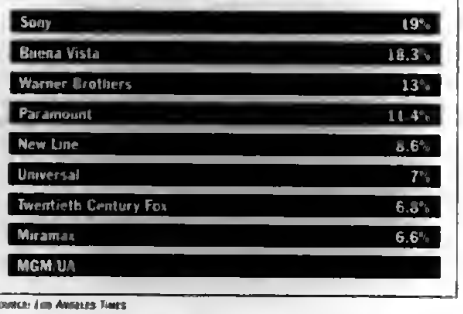
MGM/StarGate
MGM's "digital planet" lets browsers preview a major motion picture. http://www.earthlink.net/STARGATE/

MGM/UA: Multi-Media Center
A preview site of current and upcoming MGM/UA projects. http://www.earthlink.net/MGM/media_center/video.html

Hollywood has been?

MGM/UA's revenue ranks lowest of the major studios

Domestic market share for current release films, May 19-21, 1995



Source: *Los Angeles Times*

A 'STARS' is born

MGM is counting on the new STARS system to automate and improve worldwide sales tracking. When functional, the system will work like this: Say a television station in Rome wants to air *Stargate*, a recent popular MGM film.

In the client's office, one of MGM's 20 sales representatives flips open an IBM multimedia ThinkPad with a built-in CD-ROM drive and Microsoft Corp.'s Office. He hits a key, and a 60-second clip from the film plays. Another keystroke checks an onboard Watson International Corp. SQL database to see if a competitor has already bought local rights.

A few more taps generate an electronic contract, which can be approved and sent via Lotus CC: Mail and Infonet Services Corp. X.25 for home office review. The contract can then be finalized on the spot.

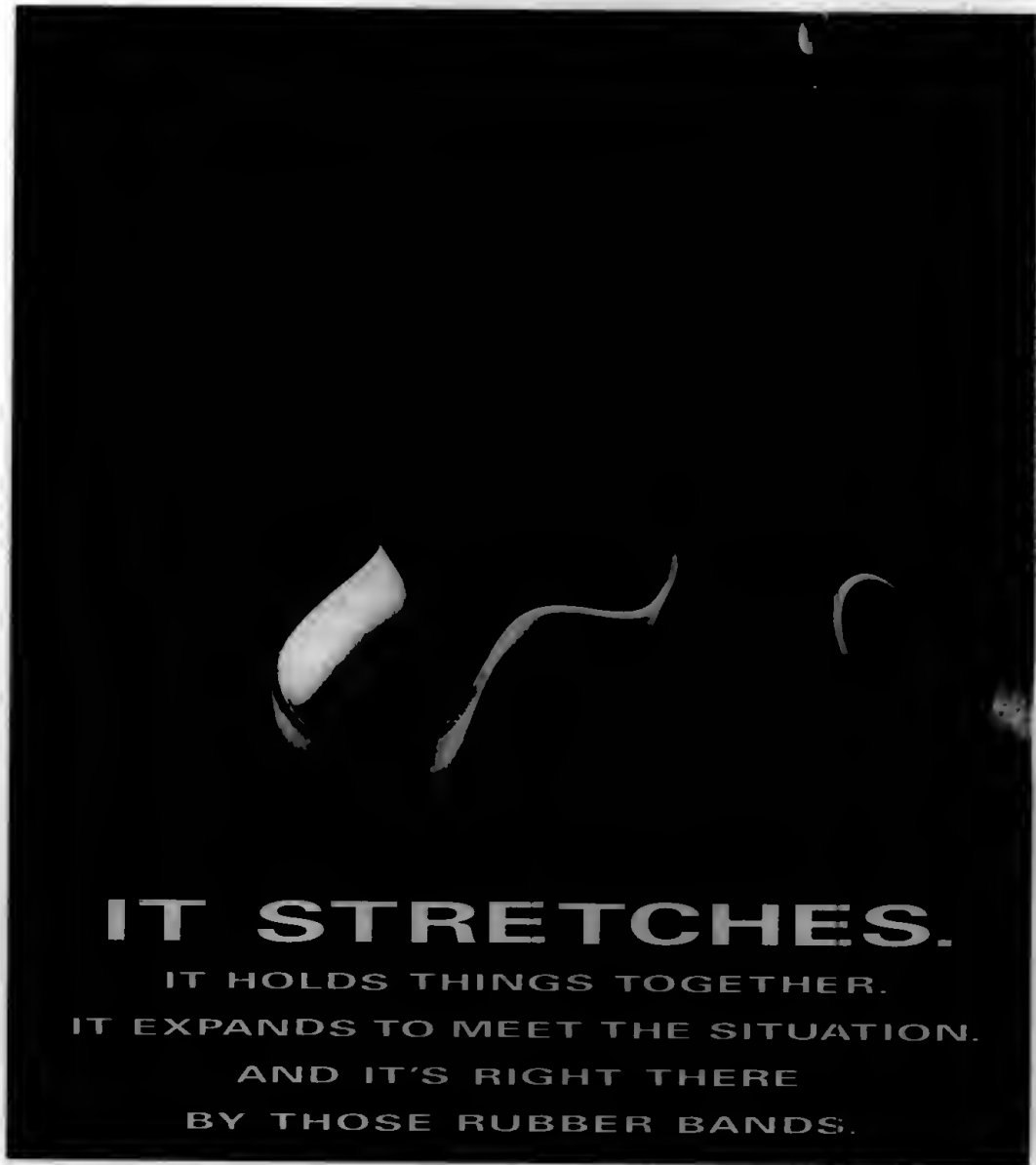
Consolidated product and client data reside on an IBM AS/400 running third-party software from Entertainment Software Solutions. Using Powersoft Corp.'s PowerBuilder, teams then built a client/server front end to a Hewlett-Packard Co. HP 9000 server running Unix and Sybase's System 10. Gateways from MDI link ThinkPads to the HP server.

The process will replace scattered paper lists or countless telephone calls to the home office.

MGM expects STARS to make it easier and faster to do business with its sales reps. For the first time, studio executives will be able to see exactly how well each product sells. The company says the system has already trimmed 20 home office support jobs. Eventually, Altman says, STARS will help sell games, interactive TV and other new media.

—Joseph Maglitta

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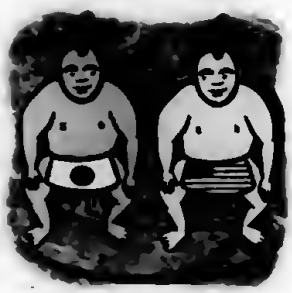
Dispatch from the Land of the Rising Sun

Computerworld's senior editor for management, Allan E. Alter, spent a week in Japan meeting IS executives. In the May 1 *Computerworld Global 100* issue, he reported on Japan's distinctive way of using information technology to enhance and support human relationships (see "Harmonic Convergence"). Here's a quick report on the pressures and concerns of Japanese IS executives today and an application unlike any on this side of the Pacific.

Skepticism, anxiety, hope

Japanese management has a mixed view of IS

Most Japanese chief executive officers are still skeptical about the benefits of information systems. One problem, observers say, is that few of Japan's older managers have a good understanding of IS. Another is their good memories: Many CEOs haven't forgotten the late 1980s and early 1990s when "strategic information systems" was the buzzword and Japanese IS managers promised, but failed, to deliver these systems. The result is Japanese IS executives rarely enjoy high status in their companies. For example, the IS department is listed at the bottom of Tokyo Electric Power Co.'s corporate organization chart, which rankles Minoru Yoshikawa, general manager of the department.



But ask Japanese CEOs what keeps them awake at 2 a.m., and they'll probably say, "the Americans." The U.S.'s industrial resurgence, the sluggish performance of the Japanese economy and wounded pride are causing some CEOs to look at how U.S. companies use IS.

"They're terribly concerned with not being in the same league as the U.S. with [IS]," says Virginia Reck, an American re-engineering consultant who advises several manufactorers who are members of the Sumitomo Keiretsu, an industrial group. She says she's worried that her clients will rush to catch up with the U.S. by installing technologies they don't understand.

But while Japanese CEOs are putting pressure on their IS managers to help their companies reduce costs, they are placing great value on their young, computer-savvy salarymen as the IS-enabled future of their company. At one Sumitomo company, senior management approved an IS project because "the young people were passionate advocates," Reck says. Similarly, Dai Ichi Kangyo Bank's younger IS managers, ages 35 to 45, were strikingly confident of their ability to get senior management to listen to and approve their ideas. Compare that with how American businesspeople treat junior IS personnel in the "lay them off/source them out" 1990s.

Ding dong! Daihatsu calling!

A Japanese carmaker makes multimedia house calls

Here's a distinctly Japanese way of mixing high tech and high touch to win female customers:

Daihatsu Motor Co. in Osaka considers the prime prospects for its subcompact cars to be 30-year-old married women looking for a second car. And in Japan, where customers ask car salesmen to make house calls, Daihatsu has found a way to lengthen sales visits by 150%, from 10 to 25 minutes. The secret is to provide salesmen with laptops running interactive sales presentation software designed to appeal to young women.



"Our salesmen say their sales presentations are more interesting using this system," says Hiroshi Tanaka, manager of the company's IS division.

While Tanaka couldn't provide statistics tying car sales to the use of multimedia, he said management is so pleased it plans to provide laptops to 1,000 members of its sales force (25% of the total) by year's end. More time spent with customers usually translates into more sales, he says.

The program, developed by Daihatsu's IS staff, shows options and colors and calculates prices and monthly payments. But what really grabs customers are the depictions of women — be they singles, newlyweds or new mothers — checking out the car's features. Prospects also like the interactive comparisons with competitors' cars, Tanaka says.

The system, first introduced last September, uses IBM ThinkPad laptops running OS/2.

Questions for the editor

Questions most frequently asked by Japanese IS managers

Can electronic mail boost productivity? Japanese executives have long doubted the merits of giving every employee a PC. But after watching American productivity rise as LANs and E-mail have become ubiquitous, they wonder if the same technology can cut costs and improve productivity in Japan's bloated back offices. But questions linger. Are the gains overshadowed by the cost of installing PCs, rolling out LANs and training? Does E-mail make sense when entire departments work side by side at rows of adjacent desks?



Can we trust Microsoft Corp.? Japanese IS managers have long depended on vendors such as IBM, NEC Corp., Fujitsu America, Inc. and Hitachi Ltd. for technology, advice and long-term relationships. Now they wonder whether they can similarly rely on Microsoft.

The least frequently asked question

How do Americans handle disaster recovery? IS managers in the Kobe/Osaka region quickly recovered from the Great Hanshin Earthquake. The biggest problem for Daihatsu's IS manager, Hiroshi Tanaka, wasn't downtime but downed vending machines. The earthquake tipped over soft-drink machines and snapped the pipes leading to them, flooding the company's facilities.

Photos: Nikkei

For more information . . .

Check out the following for insight on technology in Japan

Japan Window: This World-Wide Web site operated by Stanford University in Stanford, Calif., and Nippon Telegraph and Telephone Corp. provides information on Japanese companies and technical activity, including telecommunications and computer networking. Japan Window is accessible at http://jw.stanford.edu or http://jw.nttam.com or contact Burton Lee at Stanford at (415) 725-9969 and blee@fuji.stanford.edu.

The Japanese Advantage? Competitive IT Strategies Past, Present & Future by Brian Hunt and David Targett. An in-depth look at 10 Japanese IS organizations through their European subsidiaries. The bottom line: IS organizations are strong at operations but weak at supporting business transformation (Butterworth Heinemann, Newton, Mass., $47.95).

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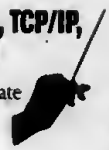
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Calendar

JULY 9 - JULY 27

MANAGEMENT

Central Region Data Administration Management Association (DAMA) International Symposium. Milwaukee, July 10-11 — Theme: "Refocusing Data Administration." Co-sponsored by DAMA Milwaukee Chapter and DAMA International. Speakers will include Jim Sinur from Gartner Group, Inc., on "Ushering in the New Age of Data Management," and Larry English from Information Impact International, on "Information Stewardship." Contact: Ellen Munroe, DAMA, Milwaukee, Wis. (414) 783-1726.

The MIT Executive Short Course for Chief Network Officers. Cambridge, Mass., July 10-14 — Theme: "Managing the Information Technology Network for Global Competitiveness." This course focuses on the role of telecommunications in global organizations and managerial and technical challenges the chief network officer faces in building and managing a network infrastructure. Contact: Executive Education Short Courses, MIT Sloan School of Management, Cambridge, Mass. (617) 253-7166.

Reshaping IS: The New IS Mission/The Keys to a World Class Enterprise. Chicago, July 13-14 — Sessions will include "IT Industry and Technology Futures," "IT Management Trends," "IT Economics and Value Generation," "Advanced Technology and Architecture Trends," "IT Asset and Portfolio Management," "IT Organization and Skill Management" and "External Services Provider Management." Contact: Ashley Pearce, Gartner Group, Inc., Stamford, Conn. (203) 967-6757.

Business Process Re-engineering: Methodologies, Business Process Modeling and Analysis Techniques for the Project Team. Stamford, Conn., July 17-19 — Focus is on understanding and managing the steps, deliverables and techniques for implementing and supporting the phases of a business process re-engineering initiative. This course provides practical experiences through exercises, documenting and mapping the "as is" business process, establishing baseline measurements, creating the "should be" business processes and managing changes. Contact: Pierson Applications Development, Inc., Stamford, Conn. (203) 322-1606.

IS Financial Benchmarking and Peer Analysis. San Diego, July 19-21 — Seminars will include "Data Requirements: Keys to Successful Benchmarking," "Methodologies and Tools: Maximizing the Efficiency of Benchmarking" and "Peer Relationships: Keys to Effective Benchmarking Relationships." Fee: $395 for Financial Management for Data Processing (FMDP) members, $495 for nonmembers. Contact: FMDP, San Francisco, Calif. (415) 731-3706.

USER GROUPS

Second Annual Southern California Technical Conference for Midrange Computer Professionals. Costa Mesa, Calif., July 20-21 — Sponsored by the Ocean User Group of AS/400 users. Fee: $325. Contact: Ocean User Group, Corona Del Mar, Calif. (714) 751-5100.

TECHNOLOGIES

The Association for Work Process Improvement's 1995 Forum & Exposition. Fort Lauderdale, Fla., July 9-12 — Theme: "Transaction Processing Application Solutions: The User's Perspective." Alan J. Parisse will deliver the keynote address on "Managing Cycles and Change." Contact: Linda Cooper, executive director, The Association for Work Process Improvement, Boston, Mass. (617) 426-1167.

The Americas' Security Expo '95. Miami, July 11-13 — Topics will include: Access control systems, sound and communications equipment, computer security and security systems integration. Contact: I. I. R. Exhibitions, Inc., Oak Brook, Ill. (708) 954-3050.

Technology Commercialization and Economic Growth Conference. Washington, July 16-19 — Sponsored by the Technology Transfer Society and the Association of Federal Technology Transfer Executives. Contact: Technology Transfer Society Information, Burke, Va. (317) 262-5022.

Summer '95 Conference and Solutions Fair. Boston, July 16-20 — Theme: "Discovering Springboards to Open Systems — IT Management Across Platforms." Topics will include data security, client/server, LANs, information technology management, industry applications, languages and tools. Contact: Guide International Corp., Chicago, Ill. (312) 245-6610.

All About IRM '95. Beaver Creek, Colo., July 17-19 — Topics will include: implementing information resource management (IRM) with object-oriented systems, unlocking the hidden assets in the organization and data warehouse project assessment. Fees: $1,095 individual, $850 per person for three or more from the same organization, $750 per participant for 10 or more. Contact: Barnett Data Systems, Rockville, Md. (301) 762-1288.

Successfully Developing and Implementing Advanced Intelligent Networks. Chicago, July 18-19 — Contact: Alexandra Early, ICM Conferences, Inc., Chicago, Ill. (312) 540-3083.

OS/2 World Conference & Exhibition. Boston, July 18-21 — Conference is devoted exclusively to IBM's OS/2 operating system, including products, services and training. Contact: Sherry Nykiel, Miller Freeman, Inc., San Francisco, Calif. (415) 905-2354.

INDUSTRIES

The 4th Annual CEMA Computer Event Marketing Association Summit. Coronado, Calif., July 12-14 — For individuals involved with or interested in computer events, trade shows, seminars, conferences, expositions and marketing communications. Contact: Danieli & O'Keefe Associates, Inc., Sudbury, Mass. (508) 443-3330.

Supply Chain Management: Shared Value Strategies. Morristown, N.J., July 25-27 — Topics will include: sharing risks and rewards, quick response and continuous replenishment, strategies of supply chain management deployment and benefiting from integrated business logistics. Contact: Denise Sharp, The Yankee Group, Boston, Mass. (617) 367-1000.

Calendar announcements should be submitted at least six weeks prior to the event and include the title of the event, dates, location, theme or focus, keynote or major speakers, principal topics and a contact person, organization and phone number.

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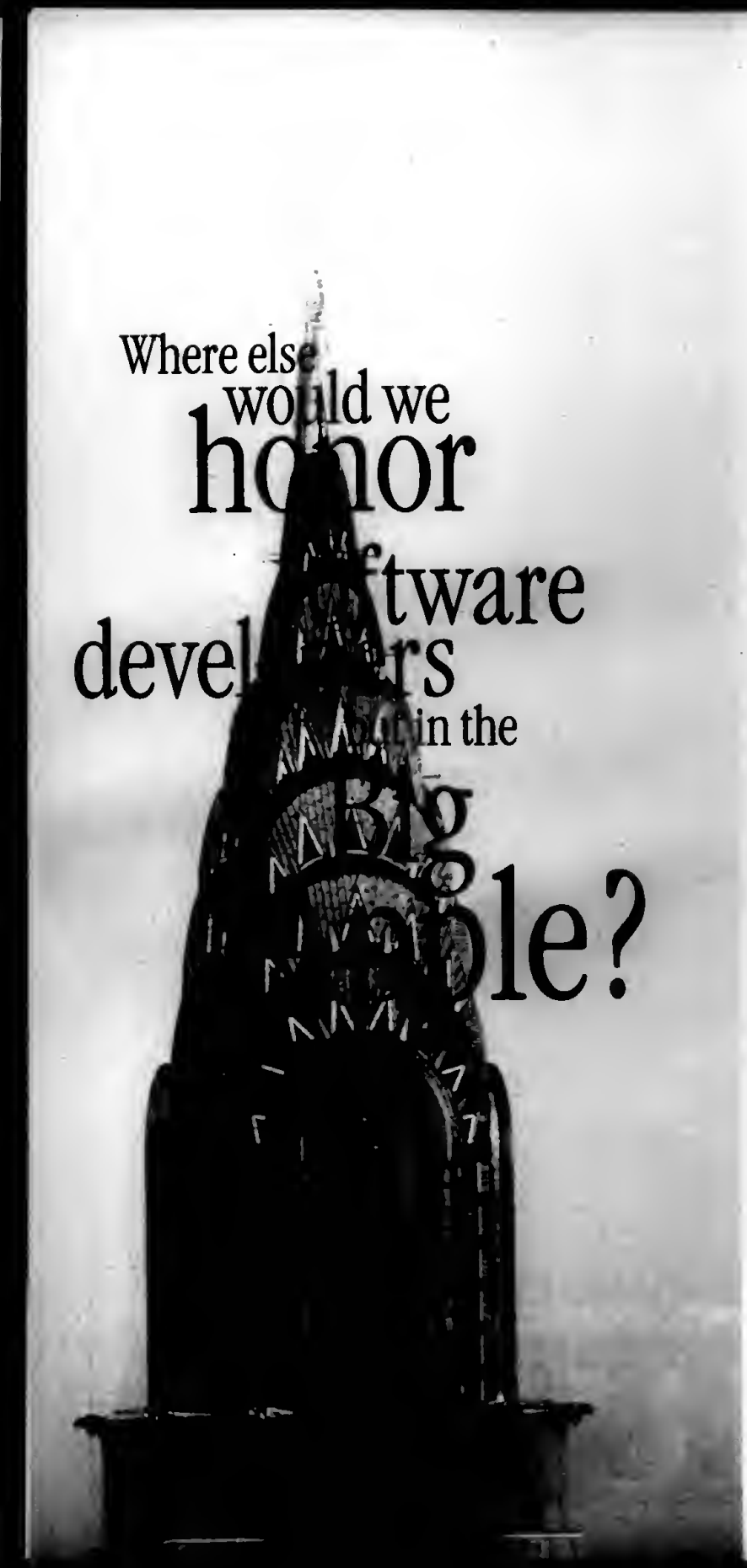
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This June, Apple Computer, *Computerworld* and MacIS will pay tribute to nine of the world's best enterprise software developers at the first annual Apple Enterprise Awards. Their innovative work has empowered individuals within corporations and institutions to accomplish more than ever before. So much more that we decided to honor them with an awards show of their very own. And after receiving submissions from around the globe, we're now proud to announce our twenty-seven finalists.

- Communication and Collaboration (Business, Education and Government):
  - Bergen Brunswig Corporation, *AccuSource*
  - Pacific Northwest Laboratory, *TWEAT: Ternary Waste Envelope Assessment Tool*
  - Trilogy, *Conquer's Data Capture (The Industry Standard Computer Information System)*
- Cross-Platform (Business, Education and Government).
  - The Naval Air Systems Command (Information Management Department), *Naval Aviation Wide Area Network (NAWAN)*
  - The Prudential Insurance Company of America, *The Member Services System (MSS), Version 4.50*
  - Walt Disney Pictures, *DISNEY "RADAR"*
- Departmental/Workgroup Client/Server:
  - Alex, Brown & Sons Incorporated, *Alex, Brown Trading System (ABS Trading System)*
  - Lockheed Missiles & Space Co., Inc., *1515 Machine 2.0.1*
  - Northwest Airlines, Inc., *Aircraft Situation Display*
- Education/Government Client/Server:
  - San Joaquin Delta College, *System 2000*
  - University College Dublin, *WEST (Web Educational Support Tools) 1.0*
  - University of Texas at Austin, *UTX Image View Client and UTX NW Image Server 1.0*
- Enterprise Client/Server:
  - Control Data Systems, Inc., *Control Data Advisor*
  - Dartmouth-Hitchcock Medical Center, *MacCIS*
  - Northrop Grumman Corporation, *Integrated Graphics Communication System (IGCS) 2.0.16*
- Mobile Computing (Business, Education and Government):
  - Centric Systems Corporation, *The Mortgage Market*
  - Medical Support Services, Inc., *ClinTrak 1.0*
  - Zimmer, Inc., *Zimmer Information Console (ZIC) Associate Tool 1.1.1*
- Multimedia Kiosk (Business)
  - Andersen Windows, Inc., *The Andersen Window of Knowledge™ System*
  - Booz Allen & Hamilton Inc., *Knowledge On-Line Kiosk 1.0*
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- Multimedia Kiosk (Education and Government):
  - City of Longview, Washington, USA, *Get in Touch*
  - Honoka'a High School, *"Instant Interactive" 1.0*
  - Penn State University, *Penn State Alumni Association Information Kiosk 1.0*
- Publishing (Business, Education and Government):
  - Second Look Computing of the University of Iowa, *Arachnid 1.0*
  - United States Surgical Corporation, *Suture Label Approval Software (SLAS)*
  - University of Pennsylvania, *Penn Printout Online*

Winners will be announced at a ceremony during the PC EXPO in New York, June 20-22, 1995. Winning applications will be announced by Michael Spindler, Apple's president and CEO, and showcased in a special supplement in *Computerworld*.

Please help us honor some of the best software developers in the world and call 1-800-396-6877 to get your complimentary tickets to the awards show, or come see the Apple Enterprise Awards booth. And join us here in the Big Apple.

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Remote CONTROL



Outside the office, Bank of Montreal managers can keep in touch with one another with their projects or with the latest financial news through a collaborative system, says bank vice president Michael Frow. For instance, users can sign off on a credit application and route it to the next user from an airplane at 35,000 feet.

MICHAEL ABRAMSON

Your CEO hears that if his remote staff isn't **collaborating** using nifty technologies, then his company is behind the eight ball. Which means **you** get pressure to make it happen. Which means **you** have to figure out how to ensure security, database consistency and uptime. (Which means **you** probably go home with a headache each night.)

By Elisabeth Horwitt

Sporting goods design engineers in Taiwan and in Chicopee, Mass., simultaneously discuss and make changes to a golf club shaft design they are viewing on their respective PCs, thousands of miles apart.

A consultant logs in to his company's server from the road and automatically gets notification of action items on which he needs to sign off. He also gets updates on the latest status of various projects.

A shared file and bulletin board system is the

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medium through which ad hoc teams of managers from different divisions of a bank come together to brainstorm new financial applications.

In the past year, collaborative computing has begun to come into its own as a means for employees at remote sites, at home and on the road to keep in touch with their work and the colleagues, information and computing resources they need.

Providing off-site users with access to a collaborative computing environment "is key for us," says Michael Frow, vice president of commercial credit at Bank of Montreal's U.S. division in Chicago. "Most of [the division's] clients are an airplane ride away, and some [managers] spend as much as two weeks a month on the road."

For Ernst & Young, the goal is to make accessing Notes-based groupware applications as transparent as possible to remote users, says Jeff Held, a partner at the firm's Vienna, Va.-based technology services practice and a developer of the company's system. "Basically, they should be performing all [LAN-based] services in the same way," whether attached to the LAN locally or from the other side of the world, Held says.

However, extending collaborative environments to remote sites and mobile users can be challenging for systems support people, says David Marshak, editor of the "WorkGroup Computing Report" at Patricia Seybold Group in Boston. How difficult it becomes depends partly on the type of collaboration remote users need to do.

For example, if users are just posting information for remote users to see, any number of electronic-mail, groupware and workflow products can do the job, Marshak says.

However, "once you add the time element of coordination, you have a much more complex problem," he says. "You need something with enough intelligence to know if [a remote user] has read a document and what action to take next."

Indeed, ensuring an efficient flow of information among remote users can be a challenge for groupware systems implementors. Few workflow products effectively perform intelligent document routing and tracking "in a disconnected environment" where users are only sporadically logged on to the LAN, Marshak says.

Corporate implementors frequently find that designing a remote collaborative environment involves trade-offs that often pit the needs of information systems against those of end users.

For example, giving remote users easy, direct access to corporate databases can also open the way to unauthorized breakins. Companies may choose to limit the former to guard against the latter.

Another area of conflict is the question of how much computing autonomy to give road warriors. Letting users download and massage data off-line cuts down on on-line networking costs but also makes it harder to ensure database consistency.

To distribute or not to distribute

Perhaps the most telling question would-be implementors must answer is how much to centralize or distribute collaborative computing resources.

> "Our [remote] users have unknowingly **wiped out** a master database when they thought they were simply pruning a replica copy."
>
> — **JEFF HELD**
> Partner, Ernst & Young

Bank of Montreal's corporate division, for example, used Digital Equipment Corp.'s LinkWorks as the basis for Centerpoint, a collaborative system that keeps managers in touch with one another, the projects in which they are involved and the latest financial news affecting those projects, Frow says. The system is expected to support its full complement of 1,200 corporate users by year's end.

At the system's core is an Oracle Corp. database distributed across Alpha servers at various division sites in the U.S. It includes a legacy host system accessed via a Sybase, Inc. SQL database front end. Users at their offices or on the road log in to a designated server and have their queries routed via pointers to the database server where their information is.

Centerpoint replaces a classically fragmented configuration in which "each department — loans, treasury and so on — had its own system for maintaining client information and its own files," Frow says. Information sharing across groups was nearly impossible, he adds.

Centerpoint also supports a workflow application that enables laptop-equipped mobile users to participate in the business process. Users can sign off on a credit application and route it to the next user from an airplane at 35,000 feet, says Lorraine Hamilton, senior project manager for Centerpoint at the bank's Toronto facility.

However, the bank's choice of a distributed database structure was not without cost, Hamilton says. Users' ability to do their jobs now depends on the continuing operation not only of their own LANs and servers but of the wide-area links connecting database servers at various sites. More than just operational, the links had to be fast enough to be useful.

That meant a major upgrade at all levels of the infrastructure to ensure "the reliability and robustness" needed to provide this new level of service, Hamilton says.

The bank needed to upgrade links between cities from 56K to 128K bit/sec. and set up additional redundant routes to add fault tolerance. The bank now uses a Token Ring arrangement between Houston, New York and Chicago so it can reroute traffic around failures. In addition, the bank had to upgrade its PC base routers to dedicated high-speed routers and upgrade a 4M-bit Token Ring LAN to 16M bits.

Separate copies of files

The Chase Manhattan Bank NA chose almost the opposite tack to address its collaborative needs. Rather than trying to maintain a single database structure across sites around the world, the New York-based financial giant chose to maintain separate copies of corporate files at its major sites in the U.S., Europe and the Far East, says Richard Werbin, vice president of the bank's Lotus Notes Center of Excellence.

The big advantage of this arrangement is that users at Chase sites around the world can do their work without having to fire off queries continually to the New York database server. Doing so would mean major overseas networking costs, including the need for 24-hour-a-day, seven-day-a-week support to cope with the different time zones.

The disadvantage of Chase's setup is that updates made to shared folders in Hong Kong may not get to New York users for as long as 24 hours. Because of the number and geographical distribution of its sites, Chase limits server-to-server updating to a single, staggered 24-hour replication process, timed to take place overnight for each time zone. Users who have something urgent to say use E-mail, Werbin says. Also, Chase has some high-priority databases that replicate more frequently than every 24 hours.

Do you want users to have power?

Another dilemma raised by remote collaboration is how much autonomous computing power to give users. The decision, once again, involves trade-offs.

Mobile managers at Ernst & Young and Chase, for example, can store and work on files on their laptops. When they log in to the home system, the files they worked on automatically update the corporate database using Notes' client-to-server replication feature; user machines upload changes made to the home folders to corresponding laptop files.

However, when remote users have this much latitude in their interaction with home files, "you do have to be careful about what rights you give them, like deleting a document from a database," Held warns. "Our users have unknowingly wiped out a master database when they thought they were simply pruning a replica copy."

The need to control updates and access to its product specifications database was the primary reason Spalding Sports Worldwide chose KeyFile, a con-

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Users running WILD

Vendors address access control and security

When remote users participate in collaborative computing, they can add a whole new dimension to the challenge of access control and security, IS managers have found.

The good news is that groupware and LAN access vendors are beginning to address this problem.

Lotus Development Corp.'s soon-to-ship Notes Version 4, for example, is expected to provide password protection for local C drives so that sensitive files stored on a laptop are not readily accessible to thieves, says Richard Werbin, vice president of the Lotus Notes Center of Excellence at Chase Manhattan Bank.

On the LAN access side, **Cisco Systems, Inc.** recently announced that the second-quarter release of its Internetwork Operating System platform will include the Terminal Access Controller Access Control System. This system is a proposed Internet Engineering Task Force standard that includes support for independent user authentication and authorizing and accounting processes.

Remote users at Bank of Montreal's U.S. corporate division in Chicago must pass two levels of security before accessing files, says Michael Frow, the division's vice president of commercial credit. First, the user must input a personal identification number; second, a personal user authentication handheld device must key in a randomly generated password.

But some types of LAN access security are simply impractical in certain remote user configurations.

For example, **Shiva Corp.'s LANRover** dial-back feature, which calls back to ensure that a remote system is calling from an authorized number, makes little sense for a firm such as Ernst & Young, whose managers dial in from sites around the world or from an airport. The consulting firm feels secure using a combination of LANRover's dial-in password coupled with Notes' public key encryption feature, says vice president Jeff Held. — *Elisabeth Horwitt*

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Remote control

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tralized document archiving system from KeyFile Corp.

"We do not want different electronic versions of a product specification residing as copies in different places," says H. Oldman Brooks, head of operations research at the Chicopee, Mass.-based sports equipment manufacturer.

Users at Spalding warehouses, factories and vendor facilities around the world can access the central specification archives in one way: by dialing in to the corporate LAN and taking over one of a limited number of PCs in the machine room. If they want a copy of the specification, they can use the PC to E-mail a request for a fax. If they want to change a specification, users send the proposed change to a central corps of design engineers who alone have the right to verify and update the central archives, Brooks says.

A centrally controlled security system gives many users the right to call up a specification on screen, but only a select few have the right to update, add or change a specification.

In addition to ensuring integrity of updates, the system lets remote Spalding sites access the latest specifications for a given product quickly and with a minimum of communications hardware, software and long-distance bandwidth.

For example, users on the factory floor can now call up and check a specification number in a minute, says Ronda Yost, warehouse manager at Spalding's golf club factory in Gloversville, N.Y. Previously, users had to dial in to a modem bank and wait for the entire specification to be downloaded to their PCs, a process that took 15 to 20 minutes even using a 28K bit/sec. modem, Yost says.

TRADE-OFFS in enabling remote users to collaborate

PRO: Remote users get easy, direct access to corporate databases.
CON: Opens the door to unauthorized break-ins.

PRO: Remote users' laptop files automatically update the corporate database after the user logs in to the home system.
CON: Allows for the accidental or purposeful deletion of a document from the corporate database.

PRO: On-line networking costs are cut by letting users download and massage data off-line.
CON: Makes it harder to ensure database consistency.

PRO: A distributed database structure allows remote users to participate fully in business processes.
CON: Requires an infrastructure that ensures reliability and robustness, including fast links to LANs and WANs.

PRO: Separate copies of corporate files let global users work without having to query a central database server, saving networking and support costs.
CON: Updates to shared folders in one city may not get to the central database in another time zone for as long as 24 hours.

The downside of Spalding's configuration is the same as that for Bank of Montreal.

"If the system or network goes down, users are stranded," says Bard White, Spalding's chief information officer. "We are setting up a second network path as well as backup redundant servers, but even so, we can have serious problems if a CPU goes down because we are so centralized."

Fortunately for Spalding, its two OS/2-based servers have not crashed in two years of operation. ■

Horwitt is a freelance writer in Newton, Mass.

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- Gartner Group, 4/5/95

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- META Group, Inc. 4/7/95

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- Smith Barney, 3/24/95

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- Alex Brown, 3/1/95

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- Computerworld, 5/8/95

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- NOREX Newsletter, 3/95

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COMPUTERWORLD

PowerBuilder, power skill

If you're going to learn PowerBuilder, aim high. Developers who can write sophisticated applications for the enterprise are the exceptions to the rule.

By Cheryl Gerber

It's not a question of whether PowerBuilder is a skill worth pursuing. It's a question of how you pursue it.

Although the PowerBuilder development community has grown significantly in the past three years, that growth has occurred primarily in departmental, not enterprisewide, applications.

Consequently, there are more basic PowerBuilder developers than ever before. Few possess the advanced skills required to write applications on a more sophisticated level, experts say. This is happening at a time when Powersoft Corp. and its parent company, Sybase, Inc., are moving their technology to that level.

As a fourth-generation language tool, PowerBuilder is top-notch for pulling icons together, but some analysts do not yet regard it as a full-fledged design tool, says Ed Kerr, co-chairman and founder of QED Information Sciences, inc. in Wellesley, Mass. His firm offers an array of technology classes, including one on PowerBuilder. "These are not heavy-duty tools. They are great for the quick-and-dirty applications, but there are database limitations," he says. Kerr is quick to add, though, that the Sybase acquisition of Concord, Mass.-based Powersoft will probably take care of those limitations.

However, as the number of departmental PowerBuilder applications in Fortune 500 companies has risen, those systems have begun to show signs of expanding into the enterprise. As a result, the increased interest in advanced PowerBuilder skills has spurred Powersoft to expand its advanced course offerings, launching two new courses next month.

But for the moment, the dearth of advanced PowerBuilder skills means companies must compromise and train new hires. "The movement in the industry is distributed client/server. We can't find those skills in one person, so we end up hiring people who have some of those skills and a good attitude, then train them in the skills they lack," says Steve Anastasi, vice president of Insight Software, Inc. in St. Paul, Minn.

Powersoft Corp.'s Web site:
http://www.powersoft.com

Frequently asked questions about PowerBuilder:
ftp://ftp.oar.net/pub/psoft/pb01.faq

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Anastasi says it's not building a basic PowerBuilder application that's needed but constructing it in a distributed environment. "If you are good at programming multiuser concurrent Windows applications, whether it's PowerBuilder or something else, you're valuable," he says.

Advanced developers "need to know how to design a relational database, how to create, use and reuse objects and how to handle GUIs as a Windows programmer," says Grace Yeung, Powersoft's Certified PowerBuilder Developer program manager.

Most observers say Sybase's acquisition of Powersoft was a solid, even necessary, move that could catapult Powersoft into the ranks of a Microsoft Corp. competitor. "Sybase users have been starved for rapid application development tools like PowerBuilder. Most users want tools that are integrated with the database," says Donald DePalma, senior analyst of software strategies at Forrester Research, Inc. in Cambridge, Mass.

"Although Microsoft's Visual Basic is the Swiss Army knife of desktop development — good to whack out fast applications — you need extra capabilities that you must buy from others and assemble. PowerBuilder gives you more out of the box," DePalma says.

Most observers say there will be an increasing need for PowerBuilder skills, and not just an ability to draw a screen, but more knowledge of the client/server environment and business needs.

As Kerr points out, client/server developers are often asked to force-fit the business process to the architecture. What they will need to succeed in the future is to make the information architecture fit the business process, he says. ■

Prerequisites, *page 115*

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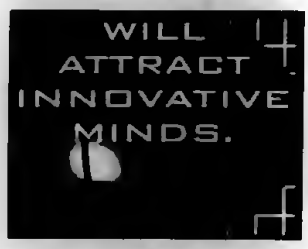
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Typically, it takes one year of client/server software development experience as well as some insight into business design metaphors to be regarded as a high-level PowerBuilder programmer

By Cheryl Gerber

Financial Dynamics, Inc. (FDI), which has offices in the Appalachian Mountain states of Virginia and North Carolina, is one of the most vigorous PowerBuilder specialists in the country. Its Fortune 500 client list includes American Express Co., AT&T Corp. and R. J. Reynolds Tobacco Co.

Brad Cooley, manager of FDI's Greensboro, N.C., office, has worked on all of those accounts and is realistic about the client/server application development process. "Developing client/server applications is tough stuff. The best-of-breed decisions change weekly. Profound knowledge today is usually heavy baggage tomorrow," he says.

Cooley says client/server implementation is more complex than some software vendors will admit. "There are plenty of cookie-cutter PowerBuilder applications and developers nowadays. But there's not enough people who can get out of the box, take advantage of the graphical metaphors in Windows and fine-tune an application around the business process," says Cooley, who was information systems manager at Ciba Geigy Corp. and an instructor at the University of North Carolina at Greensboro prior to joining FDI.

As a Powersoft training partner, FDI offers PowerBuilder courses at its facilities in northern Virginia and Raleigh, N.C., or at the customer site. Its 60-person staff consists of certified PowerBuilder developers and professionals.

For three years, FDI has seen increased demand for PowerBuilder developers. Recently, the firm noticed the gap between the high demand and the low supply of high-end PowerBuilder designers has widened. This is due partly to the relative immaturity of client/server computing. For most people, it takes at least a year of client/server software development experience as well as some insight into business design metaphors to be regarded as a high-level PowerBuilder programmer.

"There are a lot of Cobol programmers who are very structured in their approach. They've made the transition to PowerBuilder, but they lack the ergonomic perspective, the graphical, human-to-computer interface issues that apply differently to every application we write. A high-end business analyst requires different graphical metaphors than a heads-down clerical worker," Cooley says.

While departmental client/server development has become more common, enterprisewide applications are still in a wait-and-see mode for most companies. "It'll probably take a three-tiered architecture before client/server opens up to the enterprise," Cooley acknowledges.

Because client/server is basically a Windows PC networked to a Unix database server, the three-tiered approach would add a transaction server. That way, all PCs would send remote procedure calls to the transaction server, which communicates with the database server and fulfills client requests.

Cooley says FDI asks certain questions of consultant/trainer applicants. Although the firm is willing to train, it prefers those with a knowledge of relational database engines, application programming interfaces and Windows graphical user interface design. "We ask: 'Can he jam on a new object within hours? Can he survive some intense feedback on poorly designed stuff?' And most importantly, we check out the sense of humor. Without that — or at least a low golf handicap — forget it," he says.

For more information on Powersoft training, call (508) 287-1700. ■



Trainer's test: "Can he jam on a new object within hours? Can he survive some intense feedback on poorly designed stuff? And most importantly, we check out the sense of humor. Without that – or at least a low golf handicap – forget it."
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Gerber is a freelance writer in Kingston, N.Y.

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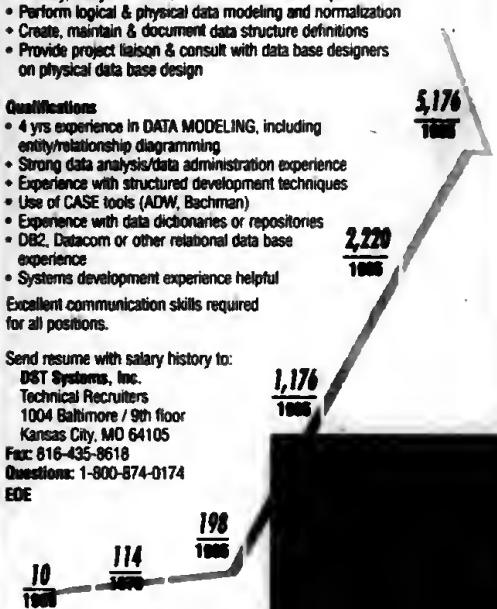
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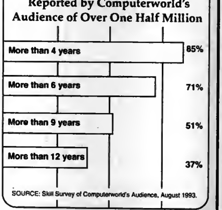
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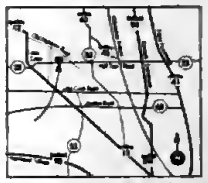
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SOFTWARE ENGINEER (2 openings) (Ref. 98405) to consult with clients to ascertain & define their business requirements or problem areas & utilize technical expertise to provide solutions to clients needs; analyze, design, develop & implement computer software for clients' EDP systems. Engineering consultant with automaker for CAD/CAM applications, specialty on PDGS (Product Design Graphics System); integrate tolerance analysis software with PDGS Specification design and development of software for adding GD&T (Geometric Dimensioning & Tolerancing) & feature information in GEOFIT & FINS modules of PDGS using C, FORTRAN & LISP on a UNIX environment. Prepare functional specifications, write test plans and test implementations on DEC ALPHA & SUNSPARC workstations. Reqs: Master's in Mechanical Engineering & 1 yr exp in job offered or 1 yr related exp as a Programmer, Systems Programmer, Programmer/Analyst, Systems Analyst, Software Engineer, Systems Engineer, Teaching Assistant, Graduate Engineer Trainee or Consultant. Must have some related exp or training including each of the following: developing mechanical layouts including various components & assigning component tolerances using IBM PC's, DEC ALPHA, UNIX, C, SUN Sparc, LISP & FORTRAN. A thesis or a published paper in the area of tolerance analysis and allocation. $41,000/yr, 40 hr/wk, 8:30a-5p.

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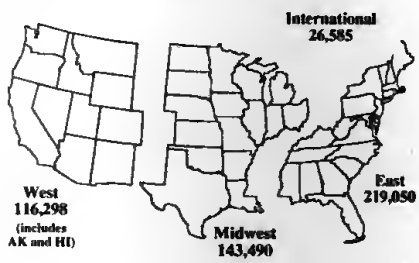
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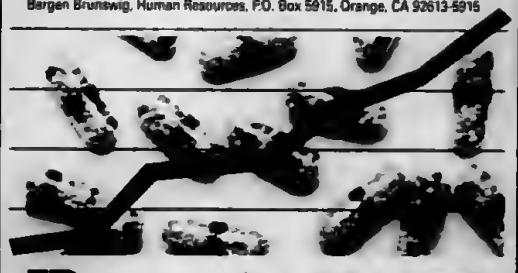
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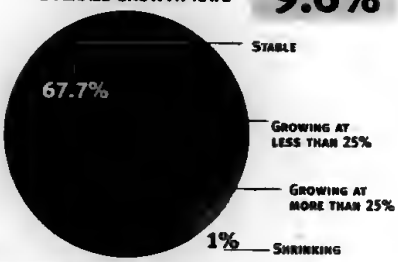
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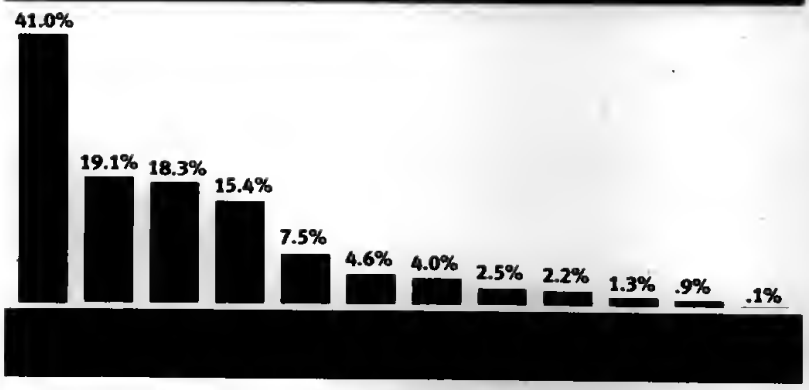
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Tools for the help desk

By Alan Radding

Help desks need help. Approximately 80% of companies with help desks don't have automation tools to support their staffs. But if you're a first-time buyer, be prepared. The help desk software market doesn't wait for tools or philosophies on what to buy first.

"If it's a small help desk — two to six people — the first tool I'd get is an ACD," says Ivy Meadors, president of High Tech High Touch Solutions, Inc. in Seattle. Her basic tool set for a larger help desk (up to 20 people) consists of an automated call distributor (ACD) and a call management system.

On the other hand, Herman Schranz, president of Services Management Consulting Group, Inc. in Las Vegas, advises clients to start with a call management system. And Albert Starck, president of Hyperion Associates in Fredericksburg, Va., favors a problem management system. More specifically, Starck says he likes the help ticket or trouble ticket systems that combine elements of call management and problem management.

Wait — it gets even more interesting. With more than 50 vendors selling tools for this market, there is considerable overlap and confusion over precise definitions. But with some prodding, help desk consultants divided internal help desk tools into four basic categories: telephony, call management, problem management and knowledge tools (see boxes).

A full set of leading tools, including knowledge bases for a 10-person help desk, fully integrated, will cost between $50,000 and $80,000. Some companies even build their own call management/problem management systems, but experts advise against this approach. "Usually, they start too small with something like Paradox or Access, so they can't scale, and they're hard to support," Meadors says. "Why reinvent the wheel?" she asks, when perfectly good help desk tools are available.

The well-equipped help desk has tools in each of the four categories, but most help desks, struggling with limited budgets, must pick and choose their weapons. This entails identifying requirements and matching them to the tool's capabilities.

Following are analysts' favorite tools in each category. They do not represent the entire market, however. In particular, Software Artistry, Inc.'s Expert Advisor received the most endorsements based on scalability, platform support and well-integrated features and functions in call and problem management. The Indianapolis company provides a comprehensive, fully integrated, enterprise-class suite of tools for multiple platforms. ■

TELEPHONY tools include ACDs and automated attendants; interactive voice response, also known as voice response units (VRU); and computer-telephone integration (CTI).

ACDs, which reside in the phone system switch, not only route incoming calls to the next available help desk staff member, but they collect data on the calling patterns.

VRUs filter and route calls based on information about the caller or problem; CTIs enable the system to provide the help desk staff with a screenful of data about the caller as it switches the call. CTIs eliminate the need to go through introductory identification again.

TOOL PICKS

ACDs: Aspect Telecommunications, San Jose, Calif., Aspect CallCenter System; AT&T Global Business Communications Systems, Basking Ridge, N.J., Definity Communications System; Northern Telecom, Inc., Richardson, Texas, ACD-MAX; Telcom Technologies, Pomona, Calif., Automatic Call Distribution Systems.

VRUs: InterVoice, Dallas, Interactive Voice Response Systems; AT&T, Conversant Voice Information System; Aspect Telecommunications, Aspect CallCenter System.

CALL MANAGEMENT systems enable the help desk to log information about the call while it collects statistics such as call duration. The VRU can be used in conjunction with call management to automate the creation of the call record. "Call management systems give you information and metrics [that] allow you to manage your staffing levels," says Herman Schranz, president of Services Management Consulting.

PROBLEM MANAGEMENT systems capture information about specific problems and monitor their resolution. In turn, they build a complete record of a problem's history and solution. Problem management systems also alert information systems staff to problems that need attention and manage their resolutions. Typically, the help desk needs a call management system more than a problem management system, but many tools combine elements of both. "

TOOL PICKS

Astea International, Inc., Bedford, Mass., PowerHelp; Answer Systems, Inc., San Jose, Calif., Apriori GT; Clarify, Inc., San Jose, Calif., ClearSupport; Magic Solutions, Inc., Mahwah, N.J., SupportMagic; Remedy Corp., Mountain View, Calif., Action Request System; Scopus Technology, Inc., Emeryville, Calif., SupportTeam; The Vantive Corp., Mountain View, Calif., The Vantive HelpDesk; Bendata Management Systems, Inc., Colorado Springs, Host.

Bendata's Host boasts the largest installed base, but analysts say it has recently lost market share. However, it continues to be recommended for small, low-budget PC-based help desks.

KNOWLEDGE TOOLS are databases of problems and resolutions from which a variety of external tools can access information. These include text-retrieval systems, case-based expert systems and decision-tree/rule-based systems. The basic approach of all these tools is to troubleshoot problems by matching the particulars of the current problem to similar situations.

There is a direct progression in sophistication and complexity from text-retrieval systems through case-based to decision-tree systems, says Bill Sheehan, president of SAGE, The Knowledge Co. in Atlanta. For example, text-based systems that are easy to build and maintain but require expertise to be used effectively are at one end of the spectrum. At the other end are decision-tree systems, which can be used effectively by novice users but are difficult to build and maintain.

TOOL PICKS

KnowledgeBroker, Inc., Irving, Texas, KnowledgeBases; ServiceWare, Inc., Oakmont, Pa., Knowledge-Paks.

Radding is a freelance writer in Newton, Mass.

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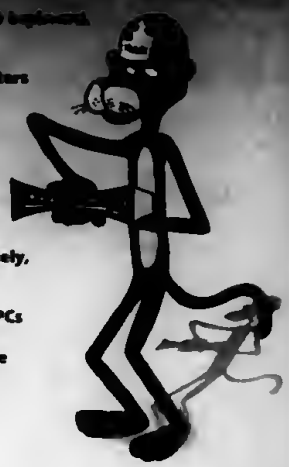
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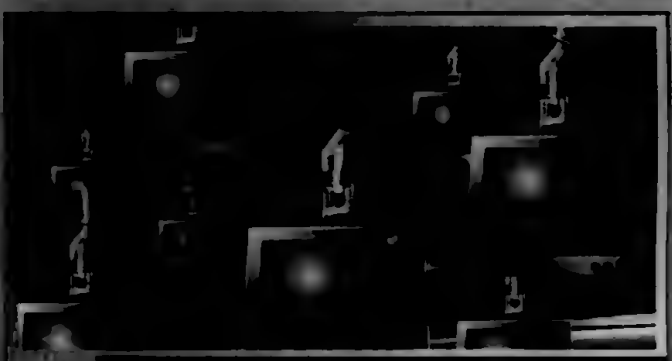
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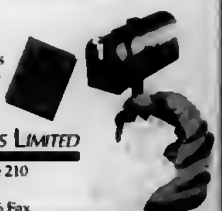


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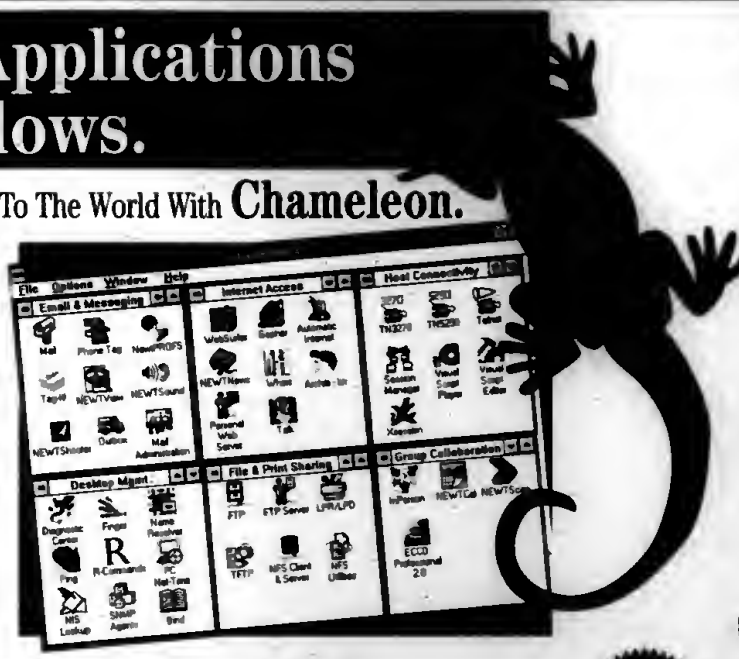
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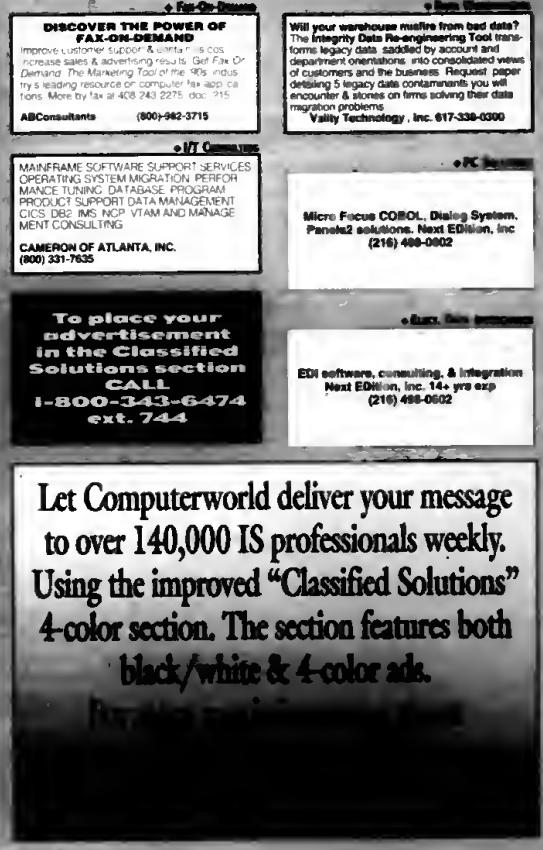
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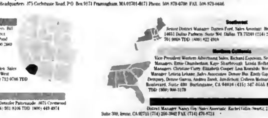
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Gainers / Losers

Percent

Gainers		Losers	
Lotus Development(H)	103.4	Encore Computer Corp	-36.5
Magic Software Enterprises	40.0	Banyan Systems Inc.	-26.5
Rexon Inc.(L)	39.7	Standard Microsystems Corp.(L	-18.6
American Software Inc.	35.3	Wall Data Inc.	-15.3
Penril Data Comm Networks	33.3	Harris Computer Systems Corp	-12.9
Iomega Corp.(H)	30.1	Brooktrout Technology	-11.5
Network Computing Devices	25.5	Walker Interactive Systems(L)	-11.1
Nogan Systems Inc.	25.0	Anacomp Inc.	-11.1

Dollar

Gainers		Losers	
Lotus Development(H)	32.00	Texas Instruments	-6.13
Komag Inc.(H)	7.38	IBM	-5.75
US Robotics(H)	5.75	Banyan Systems Inc.	-4.38
Iomega Corp.(H)	4.63	3COM Corp.	-4.25
Stratacom Inc.	4.00	Intel Corp	-4.13
Adobe Systems Inc.	3.50	Standard Microsystems Corp (L	-3.38
BMC Software Inc.	3.38	Xerox Corp	-3.00
Sun Microsystems Inc.	3.31	Motorola Inc.	-2.88

[redacted]

You shall be assimilated

Given the track record of other major mergers in the computer industry, the power play by **IBM (IBM)** in Armonk, N.Y., to take over **Lotus Development Corp. (LOTS)** in Cambridge, Mass., faces an uphill climb.

"These things never work," said Mike Murphy, editor of "The California Technology Newsletter" in Half Moon Bay, Calif. For example, when **AT&T Corp. (T)** in New York bought NCR Corp. to bolster its computer business, "all it did was destroy NCR," Murphy said. And when Burroughs Corp. and Sperry Corp. joined to form **Unisys Corp. (UIS)** in Blue Bell, Pa., in 1986, the stock celebrated at $50. Today, the company's shares sell at about $10.

IBM has gone the same route. In 1984, it failed to keep Rolm Corp. within its fold largely because of cultural differences. It eventually sold the telecommunications company at a loss.

But it might be different this time. Murphy said the current various units of IBM are a little more autonomous and given to trying entrepreneurial ventures. He said IBM's desktop units are probably driving the offer to make a move on competitors such as **Microsoft Corp. (MSFT)** before the release of Windows 95.

For Lotus management, accepting IBM's offer may be its last chance to give something back to its suffering shareholders, analysts said. "With each passing day, a white knight riding in is less likely. That probably would have happened sooner rather than later," said Jean Orr, an analyst at A. G. Edwards & Sons in St. Louis.

Lotus "owes shareholders that much for the disaster they have done," Murphy said. "This is the most money Lotus shareholders will ever see in their life."

With shares closing at 63½ last Thursday, Orr said, "Lotus' stock has about reached its peak. IBM has made a generous offer." *— Stewart Deck and Tim Ouellette*

Lotus' stock acrobatics

Since its agreement with AT&T at the end of 1993, Lotus shares continued to drop. But they bounced back when IBM announced its takeover bid.



June 9 Stock Ticker

Communications and Network Services — UP 1.31%

Exch	52-Week Range High	52-Week Range Low		June 9 1 PM	Wk Net Change	Wk Pct Change
OTC	69.25	21.69	3COM Corp	62.75	4.25	6.3
NYS	46.88	37.88	Ameritech Corp	42.50	1.38	3.1
NYS	57.00	47.75	AT&T	50.63	0.38	1.0
OTC	45.50	5.63	Ascend Communications (H)	43.75	1.88	4.5
OTC	29.75	12.13	Banyan Systems Inc	12.13	-4.38	-26.5
OTC	80.63	16.63	Bay Networks Inc.	40.63	2.63	6.9
NYS	58.38	48.38	Bell Atlantic Corp	53.75	-1.38	-2.5
NYS	63.50	50.38	BellSouth Corp	60.13	-0.63	-1.0
NYS	22.25	10.00	Bolt, Beranek & Newman	17.63	0.38	2.2
OTC	19.75	9.00	Brooktrout Technology	13.38	-1.75	-11.5
NYS	55.75	33.06	Cabletron Systems	52.38	1.88	3.5
OTC	22.75	10.00	Centigram Communications	14.00	1.25	9.8
OTC	40.50	20.88	Chipcom Corp	22.63	1.00	4.6
OTC	48.13	18.75	Cisco Systems Inc	46.13	0.13	0.3
OTC	11.00	6.13	Compression Labs Inc	8.75	-0.13	-1.4
OTC	10.88	5.13	Computer Network Tech.	9.50	-0.25	2.6
OTC	14.50	7.38	CrossComm	11.88	0.38	3.3
OTC	4.38	2.63	Data Switch Corp (H)	4.19	-0.06	1.5
OTC	42.38	17.88	DSC Communications	38.25	-0.18	-0.5
OTC	41.75	10.00	FORE Systems Inc	26.75	0.50	1.0
NYS	15.88	9.75	General DataComm Inds.	11.63	0.88	8.1
NYS	34.88	29.50	GTE Corp	32.88	-0.38	-1.1
NYS	114.50	78.00	ITT Corp	108.50	-2.38	-2.1
OTC	25.88	17.25	MCI Communications Corp	19.75	-0.25	-1.3
OTC	15.75	5.50	MICOM Communications Corp	5.75	0.00	0.0
OTC	13.50	5.38	Microcom Inc. (H)	12.75	1.38	12.1
OTC	10.50	4.00	NetFax Corp	2.13	0.00	0.0
OTC	6.63	3.25	Network Computing Devices	8.00	1.63	25.5
NYS	27.88	8.00	Network Equipment Tech.	23.00	1.38	5.6
OTC	30.63	14.75	Network General	24.00	-1.13	-4.5
NYS	41.75	26.50	Newbridge Networks Corp	35.88	-1.25	-3.4
NYS	41.00	27.63	Northern Telecom Ltd	37.75	-0.13	-0.3
OTC	23.75	13.38	Novell Inc	19.63	0.38	1.9
NYS	43.13	38.88	Nynex Corp	40.13	-1.63	-3.9
OTC	26.50	15.38	Octel Communications Corp (H)	25.25	1.63	6.9
OTC	25.00	4.88	Optical Data Systems Inc.	23.88	0.25	1.1
OTC	5.50	2.13	Penril DataComm Networks	5.50	1.38	33.3
OTC	30.13	11.75	PictureTel Corp	46.38	2.25	5.1
OTC	8.13	2.13	Proteon Inc.	5.88	-0.38	-6.0
OTC	7.25	2.75	Racotek Inc	3.94	0.13	5.0
OTC	7.00	3.50	Retix	4.00	0.25	6.7
NYS	24.88	16.13	Scientific Atlanta Inc.	19.00	-0.25	-1.3
NYS	46.75	39.25	Southwestern Bell Corp	45.00	0.00	0.0
NYS	40.13	25.88	Sprint Corp	32.25	0.13	0.4
OTC	31.63	12.38	Standard Microsystems Corp.(L)	14.75	3.38	18.6
OTC	47.00	10.00	Stratacom Inc	45.00	4.00	9.8
OTC	8.13	3.88	Telebit Corp	7.63	0.38	8.0
OTC	95.00	24.00	US Robotics (H)	95.00	5.75	6.4
NYS	43.38	34.63	US West Inc	39.63	1.25	3.1
OTC	23.50	10.75	Zircom	11.88	1.25	11.8
OTC	28.00	8.00	Xylogics Inc.	23.50	0.75	3.3

PCs and Workstations — UP 1.41%

Exch	52-Week Range High	52-Week Range Low		June 9 1 PM	Wk Net Change	Wk Pct Change
OTC	6.19	3.50	Advanced Logic Research	6.19	0.31	5.3
OTC	48.06	24.63	Apple Computer Inc.	43.38	1.25	3.0
OTC	19.25	10.38	AST Research Inc	17.44	-0.94	-5.1
NYS	44.38	29.50	Compaq Computer Corp	39.75	1.13	2.8
OTC	58.63	23.38	Dell Computer Corp	53.00	0.38	0.7
OTC	25.25	9.25	Gateway 2000 Inc	19.25	1.25	6.9
NYS	72.50	35.94	Hewlett Packard Co.	69.38	0.00	0.0
OTC	16.25	2.38	Micron International Inc	16.75	0.00	0.0
NYS	48.13	18.75	Silicon Graphics	37.63	-1.25	3.2
OTC	50.50	18.25	Sun Microsystems Inc.	48.19	3.31	7.4
NYS	52.38	33.38	Tandy Corp	46.38	0.00	0.0

Large Systems — OFF 0.24%

Exch	52-Week Range High	52-Week Range Low		June 9 1 PM	Wk Net Change	Wk Pct Change
ASE	13.63	5.25	Amdahl Corp	11.75	-0.88	-6.9
NYS	8.88	3.63	Convex Computer	4.00	0.25	6.7
OTC	0.72	0.16	Cray Computer	0.22	0.01	16.7
NYS	24.38	14.63	Cray Research Inc	23.00	-0.38	-1.6
NYS	12.00	6.75	Data General Corp	8.38	0.50	6.3
NYS	49.50	18.38	Digital Equipment Corp	42.63	2.38	5.9
OTC	5.56	1.50	Encore Computer Corp	1.50	-0.94	-36.5
OTC	18.50	6.50	Harris Computer Systems Cor	13.38	-2.00	-12.9
NYS	97.88	54.50	IBM	89.13	-5.75	-6.1
OTC	7.88	3.00	Meridian Data Inc.	3.63	0.13	3.6
OTC	12.75	4.75	NetFrame	5.13	0.00	0.0
OTC	21.25	11.75	Sequent Computer Sys.	19.13	-0.75	-1.6
OTC	5.88	3.33	Sequoia Systems Inc.	4.38	0.68	18.6
NYS	39.88	25.75	Stratus Computer Inc	31.13	0.63	2.0
NYS	19.75	11.13	Tandem Computers Inc	14.88	1.00	7.2
OTC	13.38	3.88	TriCord Systems	4.64	0.00	1.4
NYS	12.13	8.25	Unisys Corp	10.38	-0.25	-2.3

Software — UP 5.11%

Exch	52-Week Range High	52-Week Range Low		June 9 1 PM	Wk Net Change	Wk Pct Change
OTC	58.75	24.50	Adobe Systems Inc.	56.50	3.50	6.6
OTC	5.88	2.50	American Software Inc	5.75	1.50	35.3
OTC	30.75	9.38	Applix Inc.	27.00	2.25	10.8
OTC	44.00	23.25	Autodesk Inc	40.75	2.50	6.5
OTC	7.00	1.75	Bachman Info Systems	6.13	0.50	8.9
OTC	32.00	22.00	BGS Systems Inc. (H)	31.38	0.38	1.0
OTC	70.38	40.25	BMC Software Inc	70.13	3.38	5.1
OTC	30.75	16.38	Boole & Babbage	30.00	-0.25	0.8
OTC	14.38	6.00	Borland Int'l Inc	12.38	0.38	4.2
OTC	22.00	5.75	Bruce Control Systems Inc.	7.38	0.06	-0.8
OTC	3.75	1.78	CI Software	2.00	0.00	0.0
ASE	17.75	8.25	Cheyenne Software Inc.	16.00	0.38	2.6
OTC	26.25	9.75	Cognos Inc	75.25	0.11	0.5
NYS	73.63	37.50	Computer Associates	65.25	1.00	1.6
NYS	6.50	2.38	Computervision Corp	5.25	-0.50	-8.7
OTC	49.25	21.88	Compuware Corp	30.00	0.00	0.0
OTC	19.25	9.00	Comshare Inc.	19.75	2.25	12.9
OTC	16.75	10.13	Corel Corp	15.00	0.75	4.8
OTC	16.75	7.25	Dataware Technologies Inc	13.50	0.50	3.8
OTC	5.13	1.88	Easel Corp.	3.50	0.25	7.2
OTC	36.75	14.75	FileNet Corp	33.75	2.63	8.4
OTC	8.75	3.00	4th Dimension	4.38	-0.50	-10.3
OTC	25.25	8.50	Frame Technology	23.75	0.75	3.1
OTC	35.50	11.50	FTP Software Inc.	23.38	1.25	5.6
OTC	10.75	7.00	Group 1 Software	9.50	-0.38	3.8
OTC	14.50	6.75	Gupta	9.38	0.25	2.7
OTC	10.75	4.63	Hogan Systems Inc	10.63	2.13	25.0
OTC	49.75	23.25	Hyperion Software Corp	40.13	1.38	0.3
OTC	17.75	11.75	Information Resources	17.25	1.69	10.8
OTC	49.25	14.25	Informix Corp	45.38	-2.00	-4.2
OTC	14.38	7.38	Intergraph Corp	12.31	0.69	5.3
OTC	6.50	2.50	Interleaf Inc.	6.38	0.19	3.0
OTC	20.75	8.63	Intersolv Inc. (H)	20.75	2.25	12.3
OTC	86.25	29.50	Intuit Inc.	67.50	3.25	5.1
OTC	47.00	19.00	Legent Corp	43.63	0.50	1.0

Exch	52-Week Range High	52-Week Range Low		June 9 1 PM	Wk Net Change	Wk Pct Change
OTC	69.06	25.00	Lotus Development (H)	63.06	32.06	103.4
OTC	10.50	3.63	Magic Software Enterprises	7.88	2.25	40.0
OTC	14.38	8.75	Manugistics Group Inc.	12.00	1.00	9.1
OTC	80.00	14.75	Marcam Corp (H)	36.75	1.25	3.5
OTC	4.50	1.44	MathSoft	1.38	0.38	12.5
OTC	33.38	6.75	McAfee Associates	22.75	0.38	1.4
OTC	18.38	9.38	Mentor Graphics (H)	17.50	0.38	2.2
OTC	20.00	10.75	Micro Focus	12.50	0.50	4.2
OTC	8.00	4.63	Micrografx Inc	6.13	-0.06	1.0
OTC	89.50	40.88	Microsoft Corp	94.75	0.86	1.0
OTC	27.50	5.63	NetManage Inc	15.63	1.50	10.6
OTC	38.50	22.66	Oracle Corp	36.13	0.25	0.7
OTC	49.00	21.38	Parametric Technology	44.75	0.75	1.7
OTC	26.75	9.00	ParcPlace Systems Inc	13.13	0.38	2.9
OTC	59.50	14.88	PeopleSoft	36.50	1.25	3.3
OTC	10.00	4.38	Phoenix Technologies	8.88	0.13	1.4
OTC	14.75	5.38	Platinum Software	14.00	1.75	14.3
OTC	25.25	12.00	Platinum Technology	18.13	1.56	9.4
OTC	59.50	27.00	Progress Software Corp	51.00	1.75	3.6
OTC	8.81	1.88	Quarterdeck Corp (H)	9.81	1.56	18.9
OTC	24.00	9.38	Rainbow Technologies Inc. (H)	23.75	0.63	2.8
OTC	5.38	2.00	Rasterops	4.50	0.25	5.9
OTC	6.13	2.88	Ross Systems	1.00	0.13	1.1
OTC	12.00	0.38	Sapiens Intl. Corp N.V.	3.06	-0.06	2.0
OTC	29.13	19.38	Softkey International Inc	26.00	0.69	2.9
OTC	6.25	2.88	Software Publishing Corp.	1.38	-0.25	-6.7
OTC	12.50	5.25	State of the Art	10.00	-0.25	2.4
NYS	38.88	25.00	Sterling Software Inc	33.63	1.00	-2.9
OTC	15.00	3.63	Struct. Dynamics Research	14.00	-0.44	3.0
OTC	55.00	19.88	Sybase Inc.	21.63	-4.88	3.8
OTC	26.13	9.88	Symantec Corp (H)	25.25	1.75	7.4
OTC	59.75	33.00	Synopsys	58.56	2.06	3.7
OTC	30.00	10.63	System Software Assoc.	22.88	-2.38	-9.4
OTC	7.75	3.75	TSR Inc. Corp	5.50	0.00	0.0
OTC	24.00	7.88	ViewLogic Systems	17.00	1.75	17.1
OTC	22.00	10.75	VMark Software Inc.	16.00	0.88	5.5
OTC	10.75	5.00	Walker Interactive Systems (L)	5.00	-0.63	-11.1
OTC	55.38	15.25	Wall Data Inc.	35.25	-7.25	-15.3
OTC	18.25	9.13	Wang Laboratories (H)	17.75	0.63	4.0

Semiconductors — UP 1.58%

Exch	52-Week Range High	52-Week Range Low		June 9 1 PM	Wk Net Change	Wk Pct Change
NYS	37.63	22.25	Advanced Micro Devices	34.38	0.00	0.0
NYS	35.00	16.66	Analog Devices Inc	31.50	1.25	3.6
OTC	50.38	21.63	Atmel Corp. (H)	49.75	1.50	3.1
OTC	13.13	3.63	Chips and Technologies	10.00	-0.38	3.6
OTC	38.88	21.00	Cirrus Logic (H)	54.63	0.63	1.2
NYS	37.75	15.00	Cypress Semiconductor Corp	36.75	1.25	3.6
NYS	20.25	13.38	Dallas Semiconductor	18.88	0.50	2.7
OTC	51.75	14.75	Integrated Silicon Systems	31.75	1.75	5.8
OTC	119.63	56.13	Intel Corp	113.00	-4.13	3.5
NYS	77.25	22.38	LSI Logic Corp	69.38	1.88	2.6
OTC	35.38	15.50	Lattice Semiconductor	33.00	0.38	1.1
NYS	50.75	15.25	Micron Technology	48.00	0.13	0.3
NYS	64.75	45.38	Motorola Inc	60.00	-2.88	4.6
NYS	26.38	14.38	National Semiconductor	27.13	4.88	3.3
OTC	32.00	6.75	Sierra Semiconductor	29.25	0.13	-0.4
NYS	126.13	63.38	Texas Instruments	110.25	-6.13	4.9
OTC	18.13	10.75	VLSI Technology	26.81	0.06	0.2
OTC	6.25	1.78	Weitek	4.00	-0.06	-1.1
ASE	20.38	11.63	8X8 Solid Digital Corp	20.38	2.50	13.9
OTC	97.00	29.00	Xilinx	89.75	1.75	2.0
OTC	37.75	37.25	Zilog Inc.	37.75	0.00	0.0

Peripherals and Subsystems — UP 1.81%

Exch	52-Week Range High	52-Week Range Low		June 9 1 PM	Wk Net Change	Wk Pct Change
OTC	21.75	14.38	American Power Conversion	19.00	0.25	6.8
OTC	37.00	15.00	Adaptec Inc	31.00	0.38	1.2
OTC	27.75	14.75	Boca Research Inc	15.38	0.25	1.6
OTC	6.88	3.38	Cambex Corp	6.94	0.56	8.8
ASE	4.75	1.38	CompuDyn Corp	3.75	-0.19	-4.8
NYS	14.75	9.00	Conner Peripherals	11.13	0.38	2.0
OTC	24.00	7.38	Creative Technologies Inc.	8.63	0.25	3.0
OTC	13.13	5.38	Data Race Inc (H)	12.75	3.13	8.7
ASE	7.63	4.13	Dataram Corp	5.00	0.31	5.9
NYS	24.88	12.38	EMC Corp	21.38	0.06	0.1
OTC	22.63	6.38	Emulex Corp	21.88	0.38	1.7
OTC	16.50	11.75	Evans & Sutherland	15.00	1.25	9.1
OTC	24.00	11.75	Exabyte	11.50	0.44	3.8
OTC	8.61	1.88	Intelligent Info. Systems	2.56	0.06	2.4
OTC	20.00	3.59	Iomega Corp. (H)	10.00	4.63	30.1
OTC	6.25	2.00	IPL Systems Inc.	5.56	0.81	17.1
OTC	49.13	17.00	Komag Inc. (H)	49.13	7.38	17.7
OTC	6.50	2.63	Maxtor Corp	5.88	0.13	2.2
OTC	11.38	6.00	Micropolis Corp	5.88	0.00	0.0
OTC	16.75	8.75	Pinnacle Micro Inc	11.00	0.00	0.0
OTC	28.75	5.81	Proxima Inc.	24.00	1.25	5.5
NYS	10.75	5.13	QMS Inc	5.63	0.00	0.0
OTC	23.60	11.63	Quantum Corp (H)	23.69	1.94	8.8
OTC	15.00	7.38	Radius Inc.	12.50	3.50	13.6
NYS	9.63	6.38	Recognition International	8.75	0.13	1.4
OTC	7.00	3.63	Rexon Inc (L)	5.06	1.44	39.7
OTC	39.75	16.63	Seagate Technology	38.25	2.75	7.6
NYS	19.13	17.88	Storage Technology	23.13	0.00	0.0
NYS	47.38	27.38	Tektronix Inc	63.38	3.13	4.7
NYS	175.88	90.63	Xerox Corp	111.75	3.00	2.6

Services — UP 1.30%

Exch	52-Week Range High	52-Week Range Low		June 9 1 PM	Wk Net Change	Wk Pct Change
OTC	26.38	14.37	American Mgmt. Systems	22.88	0.25	1.6
NYS	5.38	0.56	Anacomp Inc	1.00	-0.13	-11.1
OTC	27.75	14.38	Analysts Int'l (H)	26.00	0.31	1.2
NYS	66.00	50.75	Auto Data Processing	62.63	-0.13	-0.2
OTC	36.25	14.88	Cambridge Tech. Partners	31.00	0.88	2.2
NYS	35.88	28.50	Ceridian Corp	33.13	0.25	0.8
NYS	30.88	18.15	Comdisco Inc	30.13	0.75	0.8
OTC	14.50	5.50	Computer Horizons (H)	14.50	2.00	16.0
NYS	53.50	39.75	Computer Sciences (H)	52.25	1.25	-2.3
NYS	12.50	7.50	Computer Task Group	11.25	0.00	0.0
NYS	29.63	6.75	CompUSA Inc	26.38	0.25	1.0
OTC	11.38	5.38	Comtrex Data Systems Inc.	10.25	-0.53	1.2
OTC	12.13	6.13	Egghead Discount Software	10.88	0.88	8.8
NYS	44.38	31.00	General Motors E (EDS) (H)	42.13	2.00	4.5
OTC	11.75	6.88	Inacom Corp	8.50	-0.18	-5.0
OTC	19.00	7.50	Intelligent Electronics	11.18	0.86	7.7
OTC	17.50	3.88	Marisal	6.25	0.13	2.0
OTC	21.25	8.50	MicroAge Inc	11.38	0.00	0.0
OTC	32.50	18.00	Paychex	30.75	0.25	0.8
NYS	51.63	30.63	Policy Management Sys	46.75	-0.25	-0.5
NYS	30.88	22.25	Reynolds and Reynolds	29.00	0.13	0.4
OTC	22.25	10.75	SEI Corp	20.38	0.25	3.0
OTC	38.13	22.25	Shared Medical Systems	31.94	1.31	4.0
OTC	8.00	4.00	SHL Systemhouse	8.63	0.31	5.0
OTC	21.50	9.25	Software Spectrum Inc.	17.25	0.00	0.0
OTC	50.63	32.25	Sungard Data Systems	49.00	1.00	2.0

KEY: (H) = New annual high reached in period (L) = New annual low reached in period
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OBJECT WORLD UPDATE No. 8

Objects In Action 1995

Computer Associates' Sam Greenblatt talks about the role of objects in business.



Recently, we met with Sam Greenblatt, Vice President of Research and Development at Computer Associates, the $3 billion software giant. Mr. Greenblatt is also a member of the Object Management Group's (OMG) Board of Directors and a judge for Computerworld's Object Application Awards program. Here he talks about the role of objects in supporting business objectives. And the value of attending Object World San Francisco.

So when did you first start using objects?

"I've been interested in object technology for many years, but my first real business application involving OT was in 1989 when I was at Candle Corporation. We turned to OT because it was really the only technology that could handle the complexity of the business problems we were trying to solve at that time. Since then, I've become a believer in the power of objects."

How are you putting objects to work at Computer Associates?

"As you know, today's business users have boundless access to information across networks and services . . . they're no longer constrained by platform. Our job is to support this new business paradigm. Here at Computer Associates, the technology of choice for developing robust business solutions in this open, distributed environment is object technology. We're leveraging OT across all our product lines to achieve rapid deployment of client/server applications. We've developed the CA-Unicenter not only to manage this transformation but to enable it as well."

How did Computer Associates develop applications prior to this?

"Well, like a lot of other companies in the past decade, we were confined by limited network bandwidth, expensive hardware and restricted resources in development tools. But Computer Associates recognized that it needed to move to a unified development environment masking data, communications and computing resources. That's why we developed CA-90. The company recognized that by moving to CA-90 it could leverage its legacy systems, protect its database investment, and provide multiplatform portability and integration. Now object technology just . . . extends it that much further."

How does Object Technology fit into the picture?

"First of all, the specifications for unified development at Computer Associates call for object technology. We use OT to design and implement our products, giving us an extensible foundation. Object modeling and design provide a simpler transition from design to deployment. What's more, Computer Associates has a blueprint we're sharing with our client base. Through a concept we call isomorphic services, we can provide portability and system management—application services common to all our applications."

Can you give us some specific results?

"While other companies were struggling to get applications like CA-Unicenter up and running, we were able to deploy it across multiple platforms at blinding speed. Not only did we transcend traditional porting time, we used a common platform to enable our clients to deploy mission-critical applications from a management viewpoint."

What's the most important advice you can give to Object World attendees about to implement object-oriented applications?

"There are several basic guidelines that are critical to successfully deploying objects and building distributed applications. But perhaps my most useful suggestion is this: when adopting object technology, proceed with due diligence to ensure that the value of the technology matches the expense of the business investment you're making. I can't over emphasize the importance of linking OT to an organization's business objectives."

Why is Object World San Francisco the best forum for learning about objects?

"Because Object World is the central gathering place for everyone who's anyone in the world of objects. Attendees get the opportunity to hear directly from companies like theirs who are using OT to solve real-world business problems. And they'll gain a common understanding of object development in a multivendor, heterogeneous environment . . . one where they have the tools to move to the next generation of enterprise computing. In fact, everybody who comes to Object World San Francisco—developers and users alike—will be able to clearly focus on the business impact of OT."

Don't miss Sam Greenblatt and other OT movers and shakers at Object World San Francisco. No other OT conference offers you a broader range of subjects or greater technical depth. You can choose from 19 tutorials and 48 conference sessions—many are based on actual case studies and feature OT users and industry experts.





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DISTRIBUTED APPLICATIONS FOR THE REAL WORLD

OBJECT WORLD

IBM takeover

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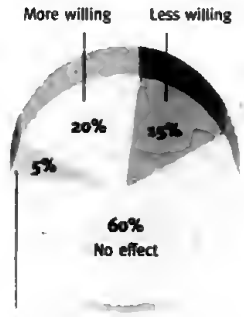
"It's really ingrained in our whole process here, and we were concerned" about Lotus' financial viability, Ditchfield said.

Not all users were as buoyant as Ditchfield, however.

"My preference would obviously be an independent Lotus. They've served us very well in their current form," said Craig Goldman, CIO at The Chase Manhattan Bank NA in New York, which has 15,000 Notes users in 40 different countries. "But certainly there are some upsides as far as the [IBM] resources that would become available to make [Notes] even better."

Investment plans by large information systems shops were also unlikely to waver in the face of the proposed acquisition. An exclusive *Computerworld* survey of 112 IS managers last week found that 64% of the respondents anticipated "little or no effect on my company's buying plans," while 17% said it actually made purchasing Lotus products more likely. Only 9% said the buyout made it less likely their firm would invest in Lotus products.

How willing would you be to buy Notes if IBM succeeded in acquiring Lotus?



BASE: 112 MICROSOFT AND LOTUS USERS

Source: *Computerworld* survey

Entering the atomic age

IBM's Gerstner hilled Notes and Lotus' overall communications strategy — which includes the CC:Mail electronic-mail package and SoftSwitch cross-platform communications package — as the prime reason IBM launched its hostile takeover effort last Monday.

Gerstner positioned the buyout as a way for IBM to help establish the standard for communications across the enterprise. Yet Novell, Inc. is arguably the dominant player in this arena, and most called the bid a last-ditch effort to counter Microsoft Corp.'s pre-eminence at the increasingly important low end of the enterprise.

The *Computerworld* survey showed that 57% of the respondents believe competition will increase if the deal goes through, and 44% believe software pricing will improve. A full 73% think IBM's ownership of Lotus will make Notes more competitive with Microsoft's offerings.

"Before, [IBM] had a peashooter in a thermonuclear war, and now ... if they do the proper integration, they'll enter the atomic age," said Charlie Federman, managing director at Broadview Associates, a Fort Lee, N.J., mergers and acquisitions adviser specializing in high tech.

Ed Dombek, information center manager at Trustmark Insurance Co. in Lake Forest, Ill., agreed.

"This is an opportunity to get some real competition in the marketplace," Dombek said. Trustmark is a 95% OS/2 shop that uses Lotus applications. "Lotus has a real interesting suite of products, but they've kind of fallen behind," he added.

Others said, though, that it will be difficult for Lotus to mount a challenge to Microsoft under any circumstances.

"It's like GM buying Chrysler. That makes my car-buying decision easy: I'm still buying Toyota," said Len Steinbach, president of the Microcomputer Managers Association and vice president of information technology at the National League for Nursing, Inc. in New York.

User concern

The potential for culture clash and IBM's unfortunate history in the desktop software market topped the list of user concerns (see story, page 14).

"My advice to [Gerstner] is to make sure Lotus has space," said Ronan McGrath, vice president of information technology and accounting at Canadian National Railways in Montreal.

"In a word? I'm apprehensive," said Todd Greeno, manager of internal consulting at the U.S. Pharmaceuticals Group of Pfizer, Inc. in New York. He expressed concern about IBM's more staid corporate culture stifling the creativity of Lotus developers.

Senior editors Craig Stedman and Rosemary Cafasso contributed to this story.

Notes untarnished

CONTINUED FROM PAGE 1

would improve Notes' chances of success vs. 16% who thought Notes would be less likely to succeed. However, 43% said if the deal goes through, it will have no impact on Notes.

"IBM has very deep pockets. Notes will do better with having IBM as [its] owner," said Steve Dickson, messaging network manager at US West Communications, Inc. in Denver, a large IBM and Notes site. "Lotus is more of a development corporation vs a turnkey integrator than IBM has been in the past."

"Notes in the hands of IBM could be a greater success because of its marketing strength," added Stefan Lafloer, knowledge exchange specialist at Andersen Consulting in Chicago, which ranks among the largest Notes sites with some 20,000 seats installed.

In the short term, analysts agreed with the majority of users polled that an IBM acquisition would have virtually no major impact on the product. "IBM's ability to take in, digest and integrate [Notes] will take years, not weeks or months," said Gary Rowe, a principal at Rapport Communication in Middletown, Ohio. Lotus will benefit from IBM's presence and service organization in multinational companies, he added.

Some of the user confidence that IBM will do a better job handling Notes can be attributed to Lotus' poor reputation for service and support. "Lotus' technology support isn't up to par," said Missy McElwee, manager of Notes development at Sedgwick & James in Memphis. "We hope under IBM it will be better."

A user at a large bank agreed. "Lotus had a bit of an attitude problem. IBM is more oriented to providing solutions," said the user, who asked to remain unnamed.

But if IBM's takeover gives Lotus a financial shot in the arm, it also causes some trepidation. Perhaps the greatest fear is that IBM may use Lotus applications to boost its OS/2 platform, whose success in the market has been less than breathtaking.

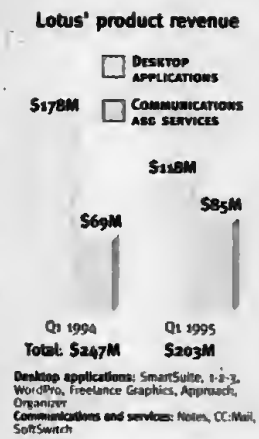
"Lotus was so platform-agnostic as far as server platforms were concerned," Dickson said. "I hope IBM doesn't spoil that by making private tweaks to make OS/2 and AIX [IBM's Unix] run faster."

Stifled creativity

Users also worry about the more creative minds at Lotus failing to flourish under IBM's stodginess.

"If [the deal] does go through, I hope they retain the brighter folk on the Notes side because they run themselves as independents under the Notes umbrella," said Andy Bard, manager of application development at Duracell, Inc. in Bethel, Conn. He was referring to the way Notes development is conducted by Notes creator Ray Ozzie and his team of developers at Iris Associates in Westford, Mass., which Lotus acquired in May of last year.

Further, IBM has legendary difficulties in marketing desktop software. "Five years from now, we could see this as a watershed," said David Marshak, a vice president at Patricia Seybold Group in Boston. "It could be when Microsoft lost its last competitor because IBM didn't know how to sell software."



Spotlight puts heat on IBM's WorkGroup

IBM's bid to take over Lotus last week focused more attention on IBM WorkGroup than deliberate attempts by the company in the past six months.

Industry reaction to IBM's collaborative computing efforts in the past was hardly flattering. "We're not that enamored with WorkGroup at this point," said Martin Huberty, MIS director at IBM site Fox International, a consumer electronics distributor in Bedford Heights, Ohio. "There is not enough exposure to it."

"Don't know how real IBM WorkGroup was," said Steve Dickson at US West. "I don't know how much was marketing and positioning and how much was deliverable."

Industry analysts said Notes will be IBM's new and realistic workgroup strategy. "Notes will be the new IBM WorkGroup," said Gary Rowe. "WorkGroup was late to the market. It's less functional than Notes. By the time IBM was on the market, the early adopters of groupware already had Notes."

Scott McCready, an analyst at IDC, said, however, that Notes and WorkGroup would exist side by side. "IBM will come up with a detailed plan as to when to buy Notes and when to buy other products from IBM," he said.

But if the deal flounders, IBM will lose credibility in the workgroup space, said Kari Wong, principal analyst at Dataquest, Inc. in San Jose, Calif. "IBM said it is committed to making Lotus Notes the only IBM solution. But what if the deal doesn't go through? What would any customer that may have looked at the IBM WorkGroup strategy, or lack thereof, be inclined to do afterward?"

—Suruchi Mohan

Software turns middle manager

If an employee has worked 1,250 hours in the current year and asks for time off to tend a sick family member, how much is the company obligated to give?

The answer is 12 days under the federal Family Medical Leave Act. However, if the employee lives in Connecticut, he or she is entitled, under a Connecticut statute, to 16 days over a two-year period. If the employee takes 16 days in the first year, he or she is eligible, under the wording of the federal law, for 12 more in the second year, for a total of 28. Follow?

These and other complexities are the target of new client/server knowledge systems that give administrators a desktop application, supported by a server database, to help them reach decisions in complex situations.

One example comes from a 14-person firm, Decisis Corp. in San Mateo, Calif., which this fall will launch InCompliance, a $70,000 decision-support system for human resources administrators. The application can extract data from general-purpose human resources applications and their databases.

InCompliance has an embedded expert system to help analyze difficult employee/employer situations. If you preload it with your personnel policies, for example, and the need arises to terminate someone, the expert system guides the human resources administrator through questions or a decision tree that brings necessary information to light. It also notes if necessary information is lacking.

The decision tree is not some generalized approximation of circumstances. Rather, it contains the specific information on the state and federal laws that apply to the case before it. Decisis has codified labor law into the application, and part of its task will be keeping it up to date for all the states. Decisis employs a former staffer of the U.S. Equal Employment Opportunity Commission and contracts with a law firm that draws one of its members from the Office of Federal Contract Compliance Programs.

Theoretically, every company can maintain this information for itself, but can it do so as effectively as a company dedicated to that purpose and to disseminating the knowledge in a database? In effect, updates from this software company not only add features to your system but also upgrade your firm's knowledge of labor law.

As we all know, corporate ranks are leaner than they used to be but not uniformly so. Business process re-engineering has repeatedly been used as a means to thin the ranks of middle managers, who in recent years have represented 8% of the workforce but 19% of the cuts.



If there are fewer middle managers, who will maintain knowledge of the rules of the organization?

Charles Babcock

Human resources middle managers were once the human interface between the employees and the rules of the organization. If there are fewer middle managers, who is going to maintain knowledge of the rules and the organizational memory that helps in informal ways to keep a business running smoothly? Not the surviving middle managers, who are forced to be generalist and who are already harried by the amount of detail they must master.

It's likely a productivity assistant, such as InCompliance, will have to pick up part of the burden. With company policies and rules embedded in an inference engine, it is at least possible to proceed through the many known facets of a problem. A human manager still must consider the nonconforming facts and special circumstances of the case and reach a decision.

But it remains an example of how PC applications will crop up with special claims on the corporate data, sometimes under pressing circumstances. Would the corporate treasurer want an application with expertise on investing international funds? Does manufacturing need expertise on a chemical process that yields different results with variations in temperature?

The potential list is endless, and the benefit of employing this orchestrated expertise will be self-evident in short order.

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News Shorts

CA to unveil Ingres object strategy

Computer Associates International, Inc. is expected to flesh out its object-oriented strategy for its CA-Ingres relational database clients this week at the Database and Client/Server World show in Boston. According to analysts briefed by CA, the company plans to integrate object-oriented technology from Fujitsu Ltd. into its CA-OpenIngres 2.0 database server, which is scheduled to enter beta testing this fall. The technology is expected to help CA leapfrog database rivals such as **Oracle Corp., Sybase, Inc.**, and **Informix Software, Inc.**, the analysts said.

EMC/Oracle deal in the works

EMC Corp. this week will announce deals to cooperate in the Unix storage market with **Oracle Corp.** and other database vendors, industry sources said. The agreements will be part of EMC's introduction of open systems versions of its Symmetrix mainframe disk arrays. Working with the database companies "is an important element of our strategy and may indeed be part of our announcement," an EMC official confirmed late last week.



Software AG maintenance increases

Software AG last week confirmed it had bumped up the price for top-end mainframe software maintenance services, a change that will take effect later this month. With the increase, users will pay 18% of their total mainframe license fees for extended maintenance services. It had been 15% previously. The service includes 24-hour coverage, said Byron Vranas, director of enterprise systems at the Reston, Va.-based company.

Encore/Amdahl deal collapses

A year-old deal for **Encore Computer Corp.** to supply **Amdahl Corp.** with RAIDs to connect to both mainframes and Unix systems was scuttled last week without Amdahl ever having shipped Encore's Infinity SP30. While Encore threatened three months ago to kill the deal after Amdahl delayed its marketing plans, Amdahl said it pulled the plug because the disk array still did not meet mainframe requirements. Encore insisted the Infinity SP30 "is fully tested and ready to go" and said it would sell the array itself and seek new distributors. Amdahl still hopes to ship some sort of RAID device this year.

ENIAC inventor dies at 76

J. Presper Eckert, who co-invented the first digital computer, died June 3 at age 76 in Bryn Mawr, Pa. Along with partner John W. Mauchly, Eckert built the massive 30-ton Electronic Numerical Integrator and Calculator (ENIAC) during World War II at the University of Pennsylvania. ENIAC, at 100 feet long, 10 feet high and equipped with 18,000 glowing vacuum tubes, was used to help develop the atomic bomb. In a 1992 *Computerworld* interview, Eckert said, "The important part of what John Mauchly and I did was develop a system. Other people built bits and pieces, but we had the whole system."

FTP Software to boost Internet access

FTP Software, Inc. will introduce the next major version of its Internet access suite this week, adding file viewing and conversion capability for remote or mobile workers and users in small workgroups or enterprise networks. Version 2.0 of both Windows TCP/IP packages — Explore for individual PCs and OnNet for workstation PCs — are expected to ship in the third quarter.



SAP ships big boost for R/3

SAP AG last week committed to delivering Release 3.0 of its client/server applications suite in phases during the next several months, with final code promised for December. Release 3.0 is reportedly the biggest boost to R/3 yet. It includes dozens of new functions for application modules, tools to distribute the client/server applications and workflow technology.

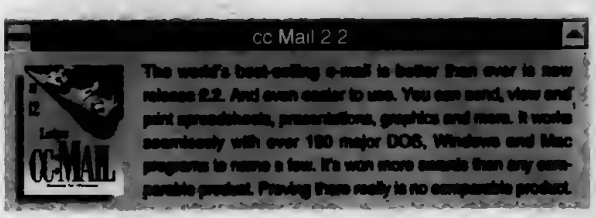
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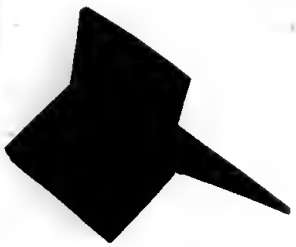
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